



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

Wax 858,99



Harvard College Library

BOUGHT WITH INCOME

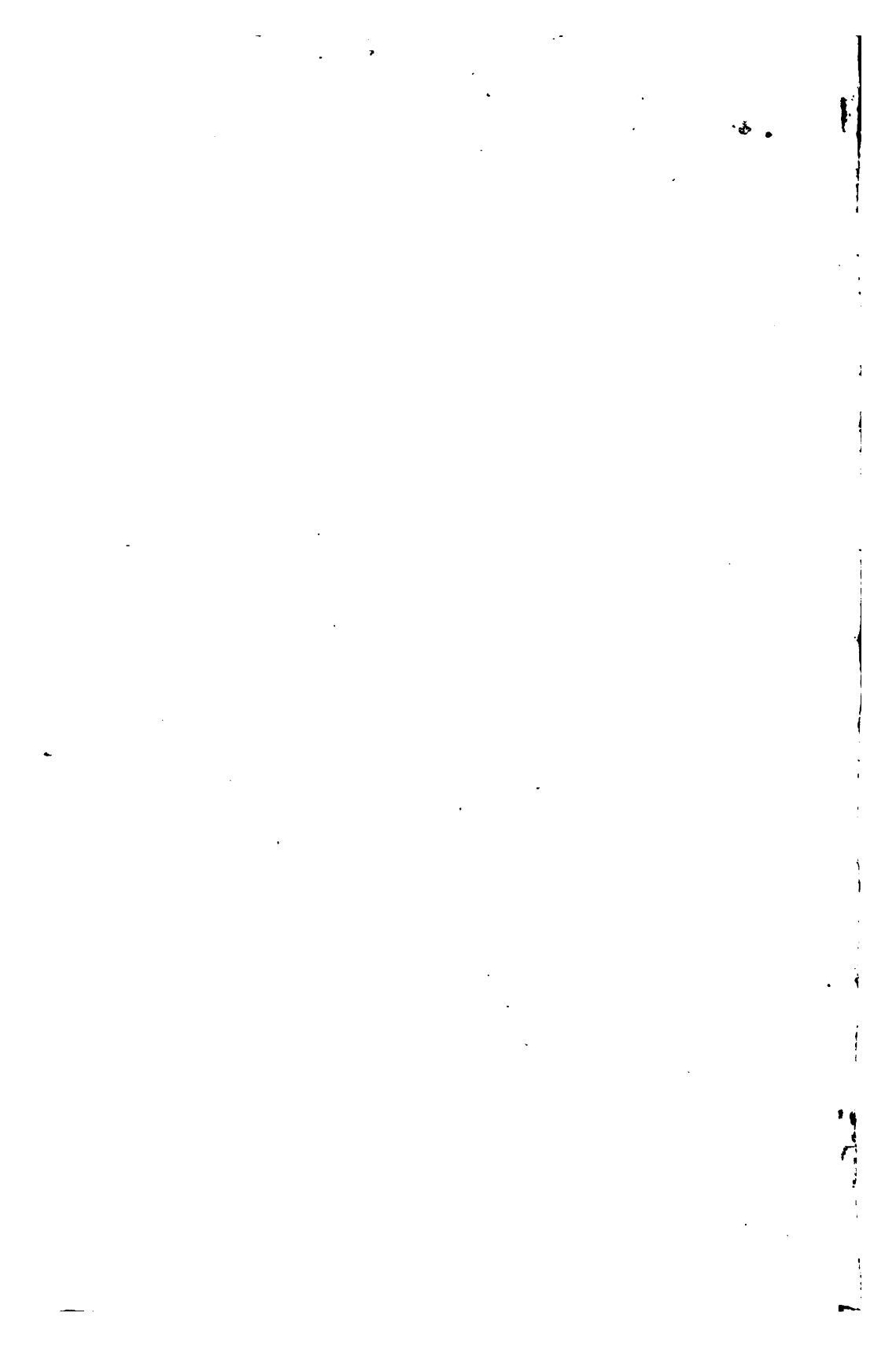
FROM THE BEQUEST OF

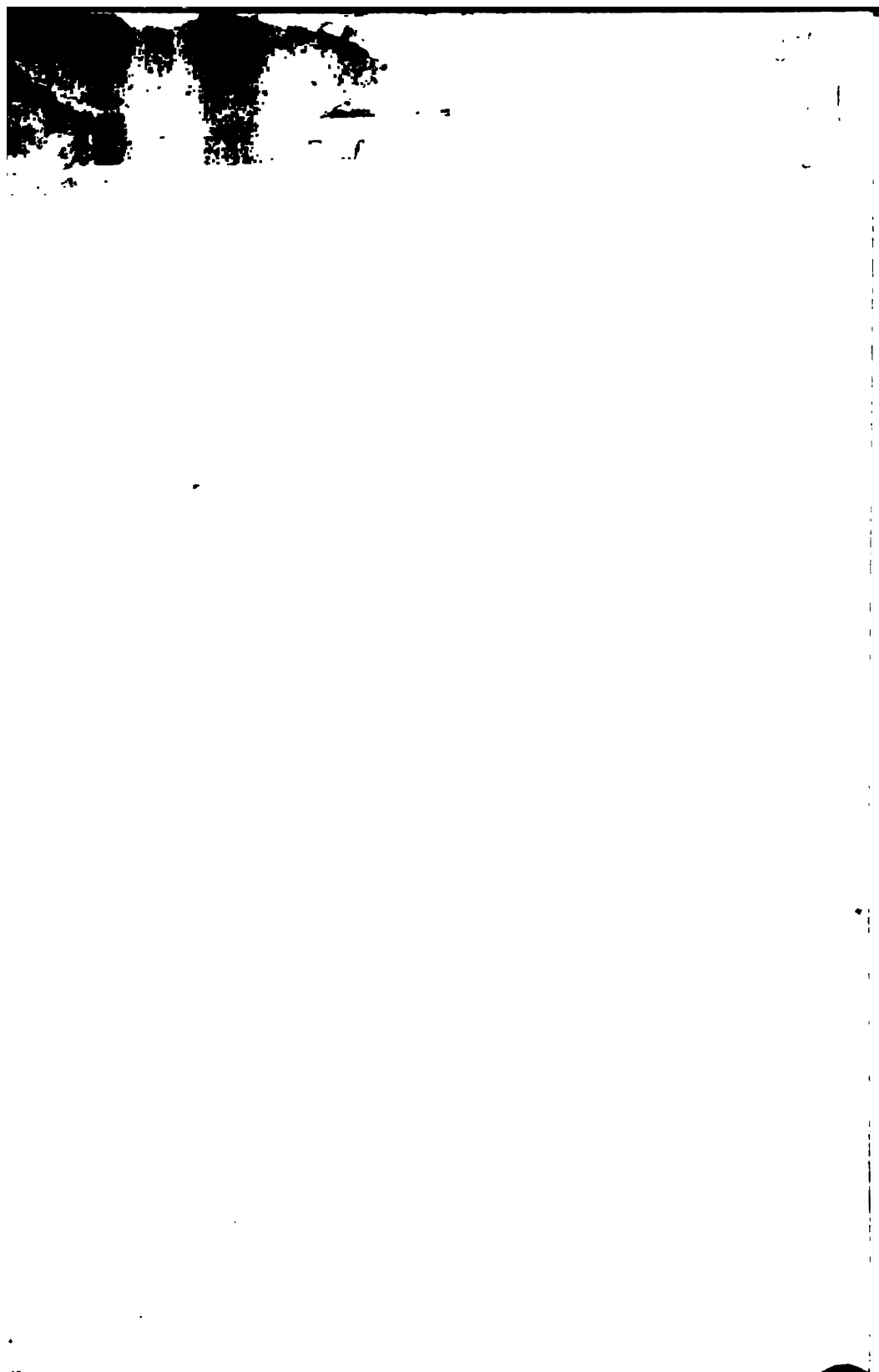
HENRY LILLIE PIERCE,
OF BOSTON.

Under a vote of the President and Fellows,
October 24, 1898.

14 June, 1899.







THE
TACTICS OF THE FUTURE

INQUIRIES
CONCERNING THE
TACTICS OF THE FUTURE

(FOURTH EDITION, 1894, OF THE 'TWO BRIGADES')

BY FRITZ HOENIG

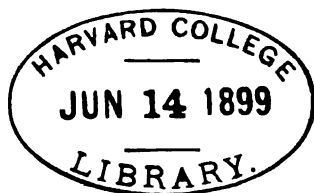
WITH ONE SKETCH IN THE TEXT
AND THREE SKETCH-MAPS

TRANSLATED BY CAPTAIN H. M. BOWER
3rd Battalion The York and Lancaster Regiment

WITH TWO ADDITIONAL MAPS

©
LONGMANS, GREEN, AND CO.
39 PATERNOSTER ROW LONDON
NEW YORK AND BOMBAY
1899

~~VII~~, 3759
Wat 658.99



Pierce fund.

TO

COLONEL J. G. WILSON, C.B.

COMMANDING 3RD BATTALION THE YORK AND LANCASTER REGIMENT

BRIGADIER-GENERAL COMMANDING THE WEST YORKSHIRE
VOLUNTEER BRIGADE

THIS TRANSLATION IS, BY PERMISSION,
RESPECTFULLY INSCRIBED

TRANSLATOR'S NOTE

IN the following Translation I have desired to place before English readers as accurately as possible a remarkable German Book. The two languages differ, however, so far that some modifications, in the form of sentences, in punctuation, and in phraseology, have been made. Such slight paraphrasing as I here and there employ has been limited not only by the general principle that all translations should be close, but also by the special character of this book—partly historical, partly argumentative or even speculative, and largely technical. In the German text considerable use is made of spaced-out type for emphasis; this method, or the correlative use of italics, I have not adopted. Investigation of questions raised in the treatise may be assisted by the citations in the text and in the Author's footnotes. The volume now offered, being a simple translation, reproduces these, but makes no claim to collating, weighing, or deciding. In a few cases, however, a footnote of my own has been added, enclosed in square brackets [], and marked TRANSLATOR.

The rule stated by the classic Peter Beckford may be, in part, extended to translations. They should be 'as little clogged as possible,' and be 'easily understood; having less to do with words than things.' I must ask the reader's pardon for some shortcomings in the present instance. The style of the translation might, perhaps, have been rather freer or lighter, while more complete uniformity and precision

might have been attained. Considerable care has been taken with the interpretation of difficult phrases. To apprehend the 'things' told us we must often specially concern ourselves with the 'words' that represent them. One or two should be noticed here.¹ The highly abstract phrase '*Einheitlichkeit*' I have generally translated = Coherence, and '*einheitliches Verfahren*' = Coherent Method. The idea itself, in this treatise, seems to fluctuate somewhat between Unity, Uniformity, Centralisation, and Coherence, of Method or Management. Coherence, in its widest and least rigid sense, seems fairly harmonious with the whole argument of the Third Part, I. and V. The main consideration propounded in regard to '*Einheitlichkeit*' is that, though troops should, ideally, be kept united both in guidance and in fighting method, yet the various conditions of the modern battle compel a modification of such unity; for, in the conflict between armies with improved weapons, control over a large or even moderate unit perforce ceases at some stage, while varying ground and the adversary's behaviour also require differences of treatment within the unit. The contention seems to be that, so far as modern conditions allow, Unity should be still vindicated, and that a generally Coherent Method, though not any Normal Attack system, should be employed till the latest possible moment. The word Coherent has therefore been specially adopted for '*einheitlich*' in the Third Part, which deals with Tactical Inferences. With regard to the word '*Treffen*,' while entertaining full respect for the authority of the Tactical First, Second, and Third Lines as distinct from line formations, I still employ this rendering with some hesitation; for it is inevitably ambiguous. When a writer challenges the Tactical use of traditional First, Second, and Third '*Treffen*,' and wishes to substitute, in the execution of the combat, a whole

¹ In some special cases reference may usefully be made to the articles in Hartmann's military *Wörterbuch* [Leipsic: Lang, 1896], and to the German *Schiessvorschrift* and *Exercitirreglements* [Berlin: Mittler & Son].

series of extended lines, then the translator's employment of Line in both these senses lands the argument in a seeming absurdity [compare pages 185, 200, 280, hereafter]. To reduce the difficulty I have distinguished Line, as the equivalent of '*Treffen*,' by a capital L, using the small initial to the word in its other senses—line in close or extended order, firing line, fighting line, line of battle, and so forth. It seems impossible to regularly use any other word than Mass for '*Masse*'; the reader will of course see from the context, and from the drift of the book, that generally bulky bodies are meant, not the specific formation in Mass. '*Aufmarsch*' has been rendered = Forming Up; '*Entwicklung*,' when used in its more technical sense=Deployment. '*Führung*,' Leading and Leadership in the abstract, I read to mean sometimes Leaders in the concrete. In some cases, equivalents will of course be only general or approximate. In others, owing to the peculiarity of both word and meaning, as for example '*Zug*,' it is perhaps best, notwithstanding the awkwardness, to use the foreign word in the English text. The German Company is a quarter or a sixth of a Battalion, and the '*Zug*' a third of a Company, while the Cavalry '*Zug*' is a quarter of a Squadron [see Hartmann's '*Wörterbuch*,' pages 492, 919]. The strength of the Company is assumed by the Author of the present work as about 200 rifles, where he discusses the space allowable for it in battle [see page 271 hereafter]. The Infantry '*Zug*' dealt with in his Tactical Inferences would therefore be about 66 or 67 rifles.

The three sketch-maps published in the German book have been copied by Messrs. Johnston on a slightly larger scale. Two maps of the environs of Mars la Tour have been added, constructed for me by Messrs. Johnston, on a reduced scale, from portions of the maps published in '*Der deutsch-franz. Krieg, 1870*,' and in the translation of that work by Major Clarke, published in 1881. For permission to make use of the English maps I am indebted to T. Digby Pigott,

Esq., C.B., the Controller, of H. M. Stationery Office. The two editions almost coincide.¹

The great importance of the treatise is obvious, whatever be the eventual judgment on controversial questions, and on the Author's detailed views. He is an enthusiastic prophet of Psychology in Tactics. It may be that professors of 'psychology,' or of mind scientifically regarded, will not recognise in his analysis any large addition to their particular branch of learning. Again, it is possible that other Tacticians, who also have practical experience, may question some of his conclusions, if regarded as absolute laws to control their science. In the Preface to the Fourth Edition, however, the Author seems to disclaim any such pretension to finality. But his arguments very forcibly arrest attention; and his main proposition is of great weight. He insists on the plain fact that Tactics deal with men, and a system of Tactics must needs take account of human nature. He dwells fully on the points he wishes to make good, illustrating and applying this principle. It should, indeed, be kept in mind that he treats the lessons of 1866 and 1870, and of modern military discoveries, from a Continental point of view, Compulsory Service being assumed. Still the tendencies of Tactics are, and must be, more or less general. One tendency is to expect of the soldier an increased self-reliance, and to demand of the subordinate leader an enhanced initiative. It is obviously possible, under the pressure of modern inventions, to go so far in allowing freedom for the exercise of

¹ Compare *The Franco-German War, 1870-71*, from the German official account, the authorised translation for the Quartermaster-General's Department, by Major F. C. H. Clarke, C.M.G., R.A., second edition [London, 1881, Clowes & Sons, &c.]; and the original publication *Der deutsch-französische Krieg, 1870-71* [Berlin, 1874, Mittler & Son]. N.B. In the English translation (1881, First Part, Fifth Section, taken as the basis of the present maps), the miles are stated as English miles, the paces remaining as German paces. In the text and notes of the present translation of *Die Taktik der Zukunft* none of the measures have been reduced to our standards. Presumably, also, the rates of marching and lengths of pace in the publications respecting Austrian and French experiments, cited in the Third Part, II., are those of the respective countries.

these qualities, and in using methods that assume them—to so far relinquish control over the smaller unit and the individual fighting-man—that there may cease to be any coherent Tactics. A danger of that sort appears to be one of the chief things dealt with in this thoughtful treatise.

HERBERT M. BOWER.

ELMCROFTS, RIFON :

March 1899.

CORRIGENDA.

Page 14, line 21, *for* open fire, &c., *read* range, &c.

" 209, " 7, " " "

" 229, " 17, " " "

" 239, " 20, " " "

" 240, " 21, " " "

" 241, " 5, " " "

" 244, lines 3, 8, " " "

" 34, line 2, *for* it *read* they.

" 38, " last but one, *delete* the first 'of.'

" 68, " 27, *for* on foot *read* closely.

" 111, footnote 4, second line, *for* 'from the hunt,' and irregularity *read*
'from the hunt' and the irregularity.

" 149, line 8, *for* to St. Hilaire *read* towards St. Hilaire.

" 151, last column in table, after the first 26 *add* footnote indication ¹.

" 168, line 10, *for* the results *read* the result in hits.

" 195, " 24, *for* principle *read* law.

" 208, lines 2-3, *for* its firing over their heads *read* overshooting.

" 248, line 30, *for* discharge *read* round.

" 250, " 5, *for* demanded *read* demands.

PREFACE

TO

THE SECOND EDITION

Books have their fortunes, the proverb says. And this one too has had its fortune. If I tell something of it, perhaps my readers may be thereby somewhat attracted; with this intention at least, I do so.

The book appeared in the year 1881, under the title 'Two Brigades,' chiefly from insistence of an officer of literary reputation, who has since died. But for his persuasion I would rather have deferred publication for some years longer. However, the conflict of that time concerning distant or close-range fire; concerning the method of fighting in extended, or in partly extended, partly close formation; as to fights by day and night, and so forth, decided me, in association with him I have just mentioned, to bring out the book, in the belief that I could thereby give some help towards settling the controversies.

If I would turn to account the facts of Tactical experience which the history of war furnishes, they must be themselves placed above all doubt. Were this the case, then one might anticipate that certain passages in the book would be received with no great liking; for nobody takes a pleasure in having his mistakes pointed out. Only one of two alternatives could be the fact: either the official version was correct, or mine. For to reconcile the two, in presence of the great mutual contradictions, remained impossible. Meanwhile, whoever compares with the official version, and with that of the 'Two Brigades,' the History of the 57th Regiment, which appeared after the 'Two Brigades,' will, without more ado, agree that, apart from minutiae, the author of the 'Two Brigades' has carried his point.

The official version of the attack of the 88th Brigade on the 16th of August, 1870, may to-day be quite justly regarded, withal, as con-

demned; that of the 28th Brigade, on the 3rd of July, 1866, as in many chief points substantially corrected. How the official version of the latter arose I do not know. As regards the former, a well-known general, one competent to pass a judgment on the matter, notified to me, under date the 10th of October, 1888, that the description in this work of just the episode of the 16th of August referred to fell much short of his own view, since it passes by one point especially—and that plainly a most important one—(from explicable concern towards living persons). That point was the retirement of the 10 intact Battalions of the 20th Division at the same instant when Wedell's Brigade advanced!—from misunderstanding! Also in the History of the 57th, by Baron v. Schimmelmann I., a particular remark directs attention, so far as can be reasonably expected from such a version, to the errors of official history writing.

The present edition differs substantially from the first. Indeed the book has properly speaking become a fresh one, and represents generally what I had from the beginning intended to produce. Many communications from officers of higher and lower rank have enabled me to insert some important occurrences, and to explain others more accurately. My thanks, on this account, are due first to Major-General v. Hiller, who commanded the 28th Brigade at Königgrätz; then, to Lieutenant-Colonel v. Leszczynski, of the secondary list of the Great General Staff, who in 1866 served with the 1st Battalion of the 17th; and to others though I do not name them.

The Introduction and the Second Part were of necessity subjected to a thorough remodelling. Though the proposition to be dealt with in the book remains correct as an aspect of Tactics generally, yet no man of understanding can ignore the great influences which the small-bore rifle, smokeless powder, and the increased efficacy of Artillery projectiles exercise upon that science. Inquiries in these regions have led to the new edition concerning itself with various questions of the future which have general interest. This made the addition of a Third Part requisite. On the other hand, the part that dealt with military history was merely enlarged.

Now a word upon the further fortune of the first edition. So far as I have observed, it became very little known to the North-German public, perhaps because something or other was unpleasant at the time. As regards this I have to do only with the phenomenon itself, and, for the rest, I do not at all concern myself as to the causes. Each reader may judge for himself. However,

'reserve' has in this case missed its object. The book found a brilliant reception in all countries, especially so in Austria-Hungary, France, Switzerland, Sweden, Russia, Holland.

When at The Hague in the year 1888, I one day called on the Dutch Minister for War, Den Beer Portugael. My reasons have nothing to do with the case. His reception of me was most courteous. He also invited me to a banquet the next day, after returning my visit in due form. There, among other guests, I met several officers of the General Staff from The Hague. The banquet was a brilliant one. The tone at table was such as can only be among well-bred and well-informed people. One felt that these men had seen and—learnt something. When we reached the roast course, the War Minister, standing up, proposed in fluent German a hearty toast to the German comrade, particularly as author. I replied in Dutch. And when the lady of the house had retired, there soon spread among us a hearty feeling. The gentlemen showed in this conversation that they were thoroughly acquainted with my writings, especially the 'Two Brigades.' To my very great astonishment individuals quoted by heart whole sentences from that book, the War Minister himself quite holding his own here. One of them told me, besides, that the book, which in Holland cost two guldens, had run up to ten guldens in one town (Flushing?) at the annual auction of the regimental library. Let this go to prove most the regard for it. If this edition reach those kindly gentlemen, I send them with it again my thanks for those pleasant hours.

From Austria-Hungary I received positively enthusiastic opinions.

French officers, too, have taken a lively interest in the 'Two Brigades.' One of them writes that he has taken care, on the spot, with the book in his hand, to put himself into the position of the 88th Brigade at Mars la Tour, and that the drama there enacted appeared vividly to his mind in all its horror. The work was his constant companion in Algiers, the German author his master and favourite writer, and so forth.

There have been, indeed, testimonies also that some in my own country agreed with me. In the autumn of 1882 I received through the post a pretty drinking-horn. The inscription runs: 'To the author of the "Two Brigades."' I hereby thank the kind givers. The drinking-horn is my pride, for the subject must indeed have appealed to those who sent it.

In the spring of 1884, by desire of one in high rank who wished me well, I visited the General of Cavalry, v. Willisen. The General

received me with the words: 'I knew you were the author of the best book on a modern Infantry fight; but I cannot believe, notwithstanding the assurance of two generals in command, that you are also the author of the anonymous writings on Cavalry.¹ Since I heard that, I was constrained to see you. And, had you not come to me, I should have sought you out. Merely to thank you, I should have done so. For till now nobody has unfolded so clearly and convincingly the employment of Cavalry in its essential points. Is it true, were you the author of these writings?' On my affirming it, the General shook my hand heartily, and, as he said, gratefully! He told me he himself had learnt very much from them. From that time I have been in lasting and cordial communication with him. One day he brought me to his writing-table, and taking from it a very tattered book, 'See,' said he, 'that will rejoice you.' It was the 'Two Brigades.' On a blank page were noted the names of the gentlemen to whom the owner had lent the book. There were about 50, many of them generals. 'Not one,' continued the General, 'but has read it with enthusiasm. It has travelled much, and so suffered somewhat in appearance, but it remains one of my favourite books.'

A general in command says that the description of the Tactical events from military history equals a photograph in precision. Lieutenant-General v. Legat, sometime commander of the 80th Division, who in 1865 was in command of my company, wrote to me from Metz that, inspecting the battlefield of Mars la Tour, the 'Two Brigades' in his hand, he found the statements and views correct, and, for the rest, the proceedings incomprehensible. General v. Hiller has repeatedly and heartily thanked me for the precise and correct description of the events from the battle of Königgrätz; and a whole quantity of communications by letter, whereof again many come out of Metz, and besides from various regiments, confirm the correctness of the description. The work has, then, in this sense quite reached its goal. And I hope that in its new form it helps somewhat the elucidation of different questions, which now once more are agitating the minds of men.

FRIEDENAU: 12th of February, 1890.

FRITZ HOENIG.

¹ 1. *Ueber die Bewaffnung, Ausbildung Organisation und Verwendung der Reiterei.* 2. *Die Kavalleriedivision als Schlachtkörper.* 3. *Taktische Direktiven für die Formation und Führung der Kavalleriedivision.* (All three were brought out by R. Felix, military publisher, Berlin).

PREFACE

TO

THE FOURTH EDITION

SINCE the appearance of the Third Edition, which is now quite out of print, there have been no very extensive warlike occurrences. Yet the events in Chile form, up to a certain point, a valuable confirmation of the principles and views put forward in this book, which, before those incidents, owed their development simply to former experiences, and consideration of technical advances.

But practical experiments in peace, as well as theoretical studies, have in some respects contributed to a greater elucidation of Tactical theory. This elucidation has found striking expression, in Germany, by many alterations made in the various Regulations and Shooting Instructions, as well as the Instructions for Field Fortification and so forth. Much the same is the case in the other countries too.

There is no pause in Tactics! The changes that have come about since 1890 could not be disregarded simply on the ground that they still in great measure must stand the test of actuality. Discussions of the main questions, therefore, that have to do with actual warfare, particularly that of the Infantry attack, ever remain as daily bread to us. I have not restricted myself to these particular points. But I have been anxious to bring into the circle of our inquiries all the Tactical phenomena of importance arising on the battlefield. But, on that account, I had also to eliminate what was antiquated, add what was new, so that the book should in both matter and form again come up to the requirements of the time.

In the First Part only Chapter I. remains unaltered. Chapter II. (*f*) of the First Part has been removed, and in place of it has been inserted 'Proceedings on the French side.' V. (*f*) of the First Part

is a fresh section, under the heading 'Losses.' To the Third Part have been added chapters 'Of Extent of Space in the Battle,' on the 'Defence,' and on 'Local and Wood Fights.' The chapter 'Suggestions in Reference to the Impression of 1889' has been left out.

I have retained the title 'Inquiries' &c., because I wish to leave the thoughtful reader free respecting the attitude he may take towards my views. The Inquiries themselves are everywhere based on the modern results of experiences and experiments obtained in the different armies.

The example of the 28th Infantry Brigade at Königgrätz is indeed antiquated. Still I have considered that I ought not to remove it from this book. For in the course of the year I received several expressions of a wish on the point, which convinced me that—especially in the Austrian Army—the retention of this event was considered important. Of the Infantry attack in masses, on the other hand, there is, up to the present time, notwithstanding its unfortunate course, no more instructive example than that of the 88th Infantry Brigade at Mars la Tour. Only such teachings must be drawn therefrom as can hold their own in presence of actuality.

Both examples are presented as they appear from thorough studies made on the spot, and consideration of all the materials obtainable upon the history of the wars. In the case of the 88th Infantry Brigade it was possible to undertake corrections of marked value. Specially helpful was the controversy in the 'Militär-Wochenblatt,' Numbers 71 to 78, of the year 1891. I was thus enabled to attain approximate precision in describing those events, both in their Historical and their Tactical aspects; and so to remove all those polemical passages which before existed.

It is impracticable, however, to exhaust Tactics by means of one example. Rather, we must adduce as many as possible. This has been done in the Third Part; and especially discussed there is the relation of defence to attack. In connection herewith I thought it needful to pay special attention to Tactical reconnaissances, and to the many questions of higher and lower kind which are bound up with them: questions which extend to the problems of army leading and discussion of advanced positions, for which, if advantage can ever come therefrom, the time might first have arrived through introduction of smokeless powder. The conclusions will turn out to be very noteworthy, though they will not justify the assertion that the correct thing has yet been ascertained on each point.

Infantry Tactics exist as little as Tactics of any other arm in the battle ; so it was inevitable to discuss the employment of all arms. But as regards this we remained subject to the authority of those points of view which presumably have close relation to the Tactics of the battlefield. All the inquiries, then, are in the main directed to combat in the pitched battle.

Soon after the introduction of the Infantry Regulations of 1888, a paper appeared in the 'Militär-Wochenblatt,' in which was expressed a wish to abstain for the time from discussing Regulations. It was expected that later a revision of the Regulations, based on the official reports of generals in command, was to follow. In fact from that time literature has studied great reserve. What reports were made by the generals in command were, it need not be said, withheld from publicity. But we must not, from the circumstance that the promised revision has not to the present time been taken in hand, conclude that it is on the whole unnecessary. At least such conclusion is contradicted by various recent occurrences. In the interval there has been ample time for testing the appropriateness of the Regulations. And therefore further observance of the reserve hitherto practised would be a mistake.

FRIEDENAU : 30th of November, 1893.

FRITZ HOENIG.

CONTENTS

	PAGE
TRANSLATOR'S NOTE	vii
CORRIGENDA	xii
PREFACE TO THE SECOND EDITION	xiii
PREFACE TO THE FOURTH EDITION	xviii
TITLE, ETC., OF THE FOURTH EDITION	xxv
INTRODUCTION	1

FIRST PART

INQUIRIES INTO MILITARY HISTORY

I. THE ATTACK OF THE 28TH INFANTRY BRIGADE ON THE FARMYARD OF BOR AND THE ARTIFICIALLY STRENGTHENED WOOD OF BRIZ ADJOINING IT, IN THE BATTLE OF KÖNIG- GRÄTZ, ON THE 8RD OF JULY, 1866	89
(a) The advance	89
(b) The forming up	44
(c) The fighting-ground	49
(d) The attack	50
II. THE ATTACK OF THE 19TH HALF-DIVISION (88TH INFANTRY BRIGADE) ON THE HEIGHTS OF BRUVILLE, IN THE BATTLE OF VIONVILLE, ON THE 16TH OF AUGUST, 1870.	78
(a) March to the field of action	78
(b) Forming up	88
(c) The fighting-ground	89
(d) Beginning of the attack	93
(e) Personal observations	97
(f) Proceedings on the French side	99
(g) Course of the attack	103

	PAGE
III. RETROSPECT	114
IV. TACTICS AT PROBLUS—BOR ON THE 8RD OF JULY, 1866	119
Psychological	121
V. TACTICS AT MARS LA TOUR ON THE 16TH OF AUGUST, 1870	129
(a) Psychological	129
(b) Remarks on the fighting-ground and on the hostile forces	188
(c) Forming up	185
(d) Attack	186
(e) Retreat	148
(f) Losses	151
(g) Things supplementary to the Report of the General Staff in respect to country	154
VI. AIMS OF THE FRENCH AND GERMAN GENERALSHIP	156
VII. HOW OUGHT THE ATTACK OF THE 88TH BRIGADE TO HAVE BEEN PLANNED ?	158
VIII. TACTICAL REFLECTIONS	161
(a) Tactical formations employed	165
(b) Duration of the attack	166
(c) Expenditure of ammunition and results of fire	166
IX. WHY WAS THE ATTACK OF THE 1ST DRAGOONS OF THE GUARD SUCCESSFUL ?	172

SECOND PART

PSYCHOLOGY AND TACTICS

I. GENERAL	177
II. PRINCIPLES	185
III. INQUIRIES AS TO THE PRINCIPLES	189
IV. OF THE MORAL EDUCATION OF THE CORPS	212

THIRD PART

TACTICAL INFERENCES

	PAGE
I. SOMETHING CONCERNING TACTICAL TENDENCIES	220
II. RESULTS OF EXPERIMENTS IN SURGERY AND BALLISTICS	230
III. SMOKELESS POWDER	238
IV. TACTICAL INFERENCES FROM THE EXPERIMENTS OF BRUNS, FROM THE BALLISTIC PERFORMANCES OF SMALL-BORE RIFLES, AND FROM THE PROPERTIES OF SMOKELESS POWDER FOR THE ATTACK	247
V. OF EXTENT OF SPACE IN THE BATTLE, UNITY OF METHOD, AND THE LINES	261
VI. OF THE DEFENCE	282
VII. OF RECONNAISSANCES AND PREPARATION BY THE ARTILLERY	293
VIII. OF ENVELOPMENTS	307
IX. OF FRONTAL FIGHTING	326
X. OF LOCAL AND WOOD FIGHTS	333
XI. OF FIGHTS BY NIGHT	343
XII. CONCLUSION	352

MAPS

(At the end of the book)

- v SKETCH I. SKETCH OF THE ATTACK OF THE 14TH DIVISION AT KÖNIGGRÄTZ
- v SKETCH II. THE 88TH BRIGADE AT THE MOMENT OF MARCHING PAST
GENERAL V. SCHWARZKOPPEN
- v SKETCH III. EXTREME LIMIT OF THE ATTACK OF THE 88TH INFANTRY
BRIGADE
- v SUPPLEMENTARY MAPS—NEIGHBOURHOOD OF MARS LA TOUR

TITLE &c. OF THE FOURTH EDITION

'Untersuchungen über die Taktik der Zukunft, entwickelt aus der neueren Kriegsgeschichte. Vierte vollständig umgearbeitete und vermehrte Auflage der "Zwei Brigaden" von Fritz Hoenig. Motto: Das Wort ist frei, die That ist stumm, der Gehorsam blind. Mit 1 Skizze im Text und 8 Planskissen. Berlin. Militär-Verlag R. Felix. 1894.' 'Das Recht der Uebersetzung wird vorbehalten.'

'Dem General der Infanterie v. Cranach, Chef des Infanterie-regiments Herzog Ferdinand von Braunschweig (8. Westfälisches) Nr. 57, in treuer Anhänglichkeit gewidmet.'

'Die vervollkommenen Schusswaffen haben die Truppenführung im Kampf nicht nur verändert, sondern auch eingeschränkt und erschwert.'

'Will ein Heer nicht auf den Sieg verzichten, so muss die Taktik psychologischer werden.'

'Cleve, den 1. Oktober 1881.'

'FRITZ HOENIG'

INQUIRIES CONCERNING THE TACTICS OF THE FUTURE

INTRODUCTION

MOTTO : Zu allen Zeiten, wo die Kunst verfiel,
Verfiel sie durch die Künstler.—SCHILLER.

FIREARMS have, in a comparatively short time, come to a high state of perfection. Yet hardly anyone would wish to assert that no further progress can be expected in rapidity of fire and in its accuracy, in flatness and length of trajectory, and in penetrating power. For example, although the aims of General Wille, expressed in 'The Field Gun of the Future' and in 'The Smallest Calibre' (R. Eisenschmidt, Berlin), may, for financial and certain technical reasons, be received only with hesitation, yet the time will come when Tactics shall claim the realisation of the principles he represents. But we have, even to-day, to reckon with this future of technique, and with its influence on Tactics. Of all arms, Infantry is the one chiefly affected by the perfecting of the shooting-weapon, and the increased importance of fire thus brought about. However, firearms can never do away with the peculiarities of the different kinds of troops. It remains as before the allotted duty of the Infantry to carry through and decide the combat. It cannot fully solve these problems by a fire fight at long ranges, and by the delivery of mass fire from those ranges. It must undertake the combat at close quarters; be brought on to the adversary; and, either by

fire or by charging, force him from his position that it may place itself there. However, that no misunderstandings may take root as to the word *close*, it should be noticed that, according to the Musketry Instructions of the 9th of September, 1893, distances up to 600 metres are close, from there to 1,000 metres medium, and over 1,000 metres distant.¹ Obviously, then, the Infantry will in fighting encounter great losses.

But it must neither shrink from loss nor yet be kept in ignorance that it is to be expected. The idea must be present in its training; that is, it must know the dangers of the battlefield. For the only means of overcoming those dangers are a clear conception of them and the will (reason and energy) to master them. The fighting method for Infantry must, as a rule, still consist in a combat by masses of skirmishers. Every other form would be quickly and prematurely shattered. I attach no value to the question whether this combat by masses of skirmishers be called a thing prescribed by regulation, or a thing organised. But the Infantry must have thoroughly mastered this method of fighting. A sufficient reason is that in it leading and guidance appear only up to a certain limit. From the time of deployment they might in many cases become quite impossible; for most of the inferior leaders will be quickly put out of action. Disorder from this cause is inevitable. One of the chief problems for Infantry remains—fighting while in disorder; though in peace time we do study to master it. The Infantry ought to be in a condition to carry through an attack in masses. For almost the whole of 'Infantry Tactics' revolves round this question. Every movement, however, that is directed to a recognised object requires most a system, however simple and elastic that may be; for otherwise disorder must render the execution of the plan impossible. And so the Infantry needs, for the combat by masses of skirmishers, some settled rules, principles and precepts, which may hold good in presence of actuality, unless the masses, when launched towards some

¹ [Since only three ranges appear in this classification I have adopted the following English equivalents:—*nah* = close or short; *mittler* = medium; *weit* or *weiter* = long or distant. The Author also speaks later of *Fernfeuer*, over 1,000 metres, in the Second Part, Chapter III.—TRANSLATOR.]

common goal of great importance, are to be rendered powerless by their own disorder. The requirement for them is, therefore, that the combat by masses of skirmishers be organised. Without staking masses nothing is decided; and so far the Tactics of to-day do not differ from those of the past. The difference consists simply in the Tactical form, by means whereof the principle is to receive life, effect, and object; it is, however, important in consideration of the difficulties of this question. The German Infantry does fight, too, in masses of skirmishers; though it will appear later on whether its method is sufficient for the purpose and always based on right principles. But it should here be said that the organisation of combat by masses of skirmishers, on a method that may prove practicable, remains in all armies still to be effected.

If we take a comparative view of actual warfare and the regulation Task method of to-day, we may say that the Tactical proceedings at the front at Wörth, at the Mance Ravine, and towards La Folie on the 18th of August, 1870, and so on, were prescribed by rule; I mean the designs which then failed of success.

Doubtless the Task method followed at those points on the battlefields was different from what is expected to-day. It was improvised, not prescribed by rule; so there was no training in it. But, from the most important point of view, one of these cases is as like another as two peas. I mean in launching the troops by dribblets, either without any previous forming up and without deployment (Wörth); in the delayed, or again in the premature, leading forward of the rear columns (Wörth, Mance Ravine); or in the hurried deployment, without previous forming up, the consequence of which was an absence of adequate organisation in relation to front and depth, as well as delay in bringing up the supporting troops (La Folie). Such success as was, then, with labour and pains eventually made good was attributable to perpetual 'correction of the Task method,' without, however, this being competent to bring unity and totality into the business—the execution of the combat. For in one place all forces were already in the Task method absorbed by the advanced positions (La Folie);

in another they did not even succeed in developing themselves against the main position (Point du Jour). Yet there were abundance of hollows and woods, which, while they impair the more centralised Orders method, should support or warrant the Task method. With the present Task method progress will certainly be made, for it appeals continuously to the Tactical power of judgment of the subordinate leaders. But as it is certain that no lieutenant from his sphere of operation can direct a battle, it is equally certain that the decision of the battle cannot be brought about by adding up the results of this or that number of Task detachments. This, however, is what sound Tactics require. I do not mean that the Task method should be condemned on principle ; only, we have no right to demand that a pyramid be able to stand on its apex. The question to be dealt with is not the alternative between Task and Orders method, but the combination of these two systems. That is, we require both ; and the two are quite compatible together, if each stand in the proper relation to the other.

A Task, indeed, may answer only to a general idea, an Order to a special one. A Task naturally falls to the lot of the higher command, for a certain object and reason : the higher command can make use of various ways and means. An Order is appropriate to the lower command, which is already narrowed by mere considerations of space and by the essentially limited scope of its operation, as well as by its smaller objective. The lower command is thus allotted a compass that leaves room for nothing beyond the execution of an Order. But the regulations do not hold this view ; at least, the Task method as therein prescribed extends too low down.

The events which appeared in the case of the Guard Corps—particularly where the 1st Brigade of the Guard at St. Privat was concerned—tell so forcibly against the Orders method of that time that no word at all should be wasted on the matter. The Guard had learnt no fighting formations at all except those for masses. Still, by that formal method a frontal deployment was at least reached, though it was not sufficient for the needs. And not even so much was attained by our attempt at that date in the direction of the Task system. On the

other hand, the Saxons towards Roncourt—St. Privat, the 38th Brigade at Mars la Tour, and Kottwitz' Brigade at Loigny, knew how to fight with unity, in masses, and to attain on each occasion an important effect. The assault of the 5½ battalions of the 38th Brigade did, indeed, fail ; but despite its many shortcomings, principally the outcome of circumstances, that example remains, among all mass attacks which really have come to anything, the very climax of Tactical offensive against the Strategic flank. We should not, however, decline further inquiry whether, by seasonable improvement and by preserving the undivided method in certain degree, we might not make better progress than we should by entirely discarding the remaining element of good, and by committing almost exclusively to the subordinate leaders the conduct of the combat.

These questions are closely connected with consideration of Orders and of Tasks as regards the form and way in which they are given. According to the Regulation of Duty in the Field, it admits of no doubt that, as a rule, writing is the form to be observed for that purpose ; for it expressly prescribes : 'Orders and reports are to be communicated in writing, unless time and circumstances determine otherwise.' And further, 'For the guidance of troops by the higher leaders the written Order is the rule. When the Order can be given by word of mouth, as in the case of troops assembled, even then the longer Orders are taken down in writing from dictation. When the business concerns simple arrangements, or a separate Task, the Order is given verbally, and may ultimately take even so simple a form as a word of command.' The Task method, for Infantry Tactics, begins with the brigade, according to regulation. The brigade receives Orders, but gives only Tasks. Thus, obviously, word of mouth is the only method for communicating them to the regiments, thence to the battalions, and all the more so from them to the companies. This appears quite clearly in the Regulations of 1889, Part II. Nos. 95, 103, 112, and 113. But as to this it must be observed that the Orders given by the battalion leader to his company leaders, and by the company leader to his *Zug* leaders, should be clear and distinct, and given in their actual presence whenever possible,

though freedom of execution should still be preserved. On the other hand, the leader of a brigade addresses his regiments in the form of individual Tasks, as does the leader of a regiment his battalions. Thus, within the Task system there is a boundary line between Orders and Tasks, the former ending with the company, the latter beginning with the battalion.

It is on many grounds desirable and useful that the Orders for fighting be likewise, whenever possible, given in written form. And it would fit in well with the Task method, and the boundary between Orders and Tasks, if here the former were given by word of mouth, the latter in writing. In the execution of the combat it will, of course, be often difficult to get an Order through to the battalions, and still more to the companies. But, on the other hand, circumstances may allow time for written communications respecting the leading of the troops—I intentionally make no distinction between Order and Task. Such cases would chiefly arise where there were adequate results of reconnaissance, and where some advanced guard action or skirmish had made the situation clear. In this way the habit is cultivated of ordering only what is necessary, and of doing so at the right moment, in the clearest and best considered form. Also, the recipient of a written Order is in a better position to think it well over, and to thoroughly impress it on his mind. Further, merely from the point of view of responsibility, the necessity for a system of writing, especially for the higher leaders, becomes apparent. Therefore it was needful to prescribe that even for the fight Orders should, as a rule, be given in writing. Anyone who has had practical experience, anyone who has attentively followed the course of the fight, will admit further that in war very few Orders are given, in peace very many, too many. This might be obviated with advantage, especially by means of criticism after the exercise; so that in this respect also a better preparation for the reality of the battlefield would be attained. Battle Tactics demand a perpetual mutual relation between Orders from above, Communications laterally, and Reports from below. The difficulty of maintaining this mutual relation has been already greatly increased by the

newer weapons. For a whole quantity of leaders are early put out of action ; also the spaces occupied by the troops in depth are considerably enlarged. All Orders, Communications and Reports demand therefore more time. Besides, the higher leaders, using a point of view away from actual contact with the fight, are often, even with good glasses, unable to make out the execution of the combat in any real completeness. The difficulties of these relatively new factors do not come to sufficient illustration in peace ; and yet art, so far as it can, must master them.

We may say that for the future, as a rule, no Reports proceeding from the firing-line can reach the spot where is the directing authority (generally with the reserve) ; yet this will become necessary from the moment when the operations come to a crisis in superiority of fire. As the passing of Orders from higher to lower must, as a rule, proceed strictly through the regular offices, in the same way Reports have to come back through these channels ; and in each case the law must be as far as possible obeyed that we make full use of speed. But from this follows, by a natural necessity, the importance of the higher leadership as regards unity of guidance. This absolutely needful organisation of Orders, Reports, and Communications must be adapted to the circumstances, and arranged in such way as the actual situation permits. It is not right that events which are outside the range of a man's own observation should on that account be dealt with too late. There may, and in many cases will, be no time for this. Therefore the regulations properly provide that the initiative for important measures should be within the power and sphere of the subordinate leaders, who are nearest the enemy, and from that provision no jot should be abated. But, at the same time, the completeness and perfection of superintendence by the higher leaders must be assisted in every possible way by the troops engaged ; this being the only means whereby a trustworthy judgment can be attained. Obviously, for this purpose also there must be a Tactical boundary, which is drawn at the brigade. The brigade is a sort of clearing-office ; and in consequence it must be sufficiently provided with an organised mounted service, for

communicating laterally and with higher commanders—a department of work which, in the long run, must be carried out by it. Hence can be seen plainly enough the importance of the brigade commander's position.

All Reports carried on foot will arrive too late; at least theory says so. But an actual battlefield both allows much, and precludes much, which cannot very easily be determined in peace. In many cases 'relays of foot-messengers' can be established in some way between leaders of battalions and of brigades—in instances, of course, where the situation requires them. This will be feasible in greater or less degree in the case of all Tasks which take time. During the long-protracted operation of the 18th of August, how many Reports from the right and left wings, and from the centre, might have been rendered in this way! How many were rendered? At the Mance Ravine, notwithstanding that circumstances fully favoured supervision, did not all the superior leaders remain long ignorant of the real state of the fight? And, but for this uncertainty, would not events have shaped themselves in many respects more propitiously? So, in the direction of every movement, even during the battle, it is needful to regulate with utmost care the system of Orders and Reports. This requires the employment of well-mounted officers, and officers of the General Staff, simply for purposes of observation, who should be expressly charged with the duty of making the earliest possible Reports. They are to duly select their posts according to the condition of the fight, and cause the horsemen told off to them to report to them everything of importance, while they carry on their own observation. Posts suitable and comparatively secure for such disposition and observation are offered even by the modern battlefield. This is proved by what took place in the centre and on the right wing at Gravelotte, indeed at St. Privat-Montois; but the wings of the hostile position must be made out beforehand. Thus it is more necessary than ever to organise in a way suitable to the time the system for Orders and Reports during the battle, and to carefully teach this in peace time. For fire fights of long continuance and change will occur also in future, while the tenacity of the fire combat has, with the improvement of firearms, not

diminished, but increased. Presumably this will hold good as regards the rifles used now; of course I mean where an effective Infantry is concerned.

Now all the great armies of continental Europe have, since the wars of 1870-71 and 1877-78, altered and shortened the periods of service, especially in the Infantry, while on the other hand the numbers of the Infantry have been considerably increased. In general one may assert that a longer period of service yields a more effective Infantryman than does a shorter one; and hence there must also make themselves felt in the Tactics of the battlefield certain results that follow from the shortening of service. The Infantry of the French Imperial Army was decidedly among the best that ever existed; but it failed in choice of Tactics, and lacked several motives of action that belonged to the German Infantry. Nevertheless, we must consider it an open question whether French Infantry will ever again equal the performances of Wörth and Gravelotte. I do not think it will. With some justice, however, one may apply this remark to every Infantry of the present time, while the demands made on them have certainly not diminished. Disorder, and the falling away of 'shirkers' to a degree which was formerly not experienced, will needs make their appearance; and there is perhaps only one way to effectively combat the evil. The leaders in all subordinate ranks must be not only efficient, but increased in numbers, and along with this there must be an organisation, in rear of the line of battle, that shall deal with the 'shirkers.' But will it be possible to realise such measures? The latter, perhaps; as to the former—we will wait and see. But, after all, we cannot get rid of our nature; besides, the evil will show itself on both sides—a further reason for bringing everything into a system favourable to survey.

The battle in masses will require a massed network of organisation for Orders, Reports and Communications, well systematised and well schooled. The network has to extend beyond the battlefield, beyond the wings, and its operation must reach in breadth and depth to the extent needed by the points of view of the relay service. So this is the basis whereon we should have to estimate the strength of the staffs, and

to decide that of the connecting-links and posts, according to the length of roads and the presumable importance of each point in the whole line. When battles are concerned that last for several days, this view of the matter is all the more important. And though it be considered that the planning of a battle must belong to Strategy, while the Tactical fighting of it should be left to the judgment of the armies, that consideration can neither contradict nor weaken the above view of the matter. It ought not to happen that the central authority find itself ignorant as to the course of the battle for many hours together, while the armies remain for that length of time unconnected with the central authority, as was the case at Gravelotte.

At any rate, in relation to the present arming and organisation of Infantry, and the uncertainties inseparable therefrom, the considerations respecting ample Infantry reserves attain an increased importance, unless the guiding authority of the army intend to lose ground from under its feet. So far-reaching is the effect of an improvement in the weapons used, together with an alteration in the conditions of service.

The defender, in considering positions already arranged, perhaps yet more those still to be laid out, will consider the advantages which advanced stations may offer him; and it is not improbable that these will in future play a greater part than heretofore. The question simply turns upon modern Infantry and Artillery fire considered in relation to the fact that the Tactical value of Cavalry is diminished. Therefore at this stage the assailant must, on his part, estimate the best method of obtaining information and delivering his attack. It does no good to cite experiences and principles. The question cannot thus be decided. It can at the best be in some degree elucidated only by peace manœuvres planned for this purpose. This must be done. It will probably become then evident that masses will have to be moved during darkness, and that important rearrangements, and even changes of front, will become necessary. Therefore all arms must possess certainty in such operations.

Tactics, then, are coming into the presence of several

new or altered questions, which cannot be completely answered from the experiences we have. These must, therefore, be extended and completed by reflections, while we never lose sight of the picture presented by reality. That is to say, we must in time of peace have a sound theory of combat.

The Infantry has had to change its Tactical forms, and, with such alterations, to put up with many drawbacks; but it has not been obliged to change its principles. In the case of the Artillery a further step has become necessary—the discovery for the first time of some of its principles. And then, both arms have had to enter into a sisterly relation, justified on both sides. In this common action the Infantry must solve a disproportionately hard problem; while the fighting of the Artillery is made easier by technique, and by greater facility for carrying out its principles. The Infantry cannot avoid complete extension; so, as a rule, it can only employ a skirmishing fire. But, even in extended order, it remains a Tactical arm. The Artillery is said to be the firm framework of the battle. But the framework must have small subdivisions; thus alone can it preserve the needful order and firmness, thus alone can it attain flexibility, obedience to direction, and the highest degree of operative power. Formerly, in the Infantry it was not the man who fired, but the officer told him to fire. At present, Infantry fire remains amenable to direction, chiefly by careful training of the skirmishers, by fire discipline; and Artillery fire only by careful training within the battery. If we are to reach the best operation possible of each of these arms in itself, and of co-operation between them, we must treat the individual skirmisher in the one case, the individual battery in the other, as a shooting-machine of primary Tactical consideration. And the Artillery has to this extent been obliged to observe the great feature of Tactics: Instead of using large units in large combinations, use small ones, and commit greater freedom to many hands, but see that they are sufficiently schooled. In the search after new principles the Artillery long aspired to the direction of concentrated masses. Practice has proved its impossibility. With the Artillery, as elsewhere, the operation of masses exists

only by the operation of individuals, the direction of masses by the direction of individuals !

It is no longer correct to speak of the Infantry, in comparison with the Artillery, as the principal arm concerned with the execution of the combat through all its phases, up to the decision. Every considerable fight establishes a mutual relation between the arms. Both must strive unswervingly for the one object—to attain together a superiority of fire over the adversary ; for this forms the condition precedent to everything beyond. During this period, presumably the longest and most costly one, the Artillery may in one place, the Infantry in another, prove temporarily more effective than its sister-arm. But the attainment of the common object requires that both should put in their full fire power as early as possible. I know I shall be contradicted here ; for in my view of Tactics I abandon on principle the distinction that has obtained between Infantry and Artillery as the chief and the assistant arm respectively, or as the first and the second arm of the battlefield. Just this break with tradition will, perhaps, induce a fresh conflict of the talents, from which I do not shrink, but must even desire it.

Superiority of fire presupposes direction of fire in the case of both arms. And in this connection there becomes apparent a measure of effect, which depends on the shooting performance of rifle and of cannon, on the number of both weapons, and the degree of proficiency wherewith they are used. That the fire of Artillery can more easily be directed than that of Infantry is, I consider, irrefutable, simply because the former can operate at longer ranges than the latter, and consequently in the case of Artillery there is more opportunity for consideration and observation. Besides, the fire of Artillery, granted certain presuppositions, is more effective in proportion than that of Infantry. Therefore, that the object may be attained, each arm requires something to complete its Tactical effectiveness. They belong ever to each other.

Certainly, my view of the matter presupposes several things that still await realisation or improvement, particularly in regard to the Artillery and to the training of leaders. Every Artilleryman must be able to hit. The gun must, during the

continuance of fire, be kept as far as possible in a state of readiness to shoot. In attaining this latter condition is the best answer to the question of 'quick-firing guns,' which does not depend on the mechanism of the barrel, but on that of the carriage (brake apparatus). But no true basis is reached for the direction of fire until, further, the organisation of the Artillery, as well as the mechanism of the gun, guarantee the highest degree of Tactical performance (mass hits). For this it is requisite that the Artillery be told off by regiments to the divisions; that the corps Artillery be abolished; that the number of batteries in a regiment, and of guns in a battery, be reduced. I need not here inquire into the degree; it suffices to point out that the present units are too large. Artillery operates in batteries, and the smaller the bodies are, provided they have learnt how to hit, the better can the fire be directed. The Artillery, which belongs to the division, must be so incorporated with it that the Infantry and Artillery undergo a thorough Tactical coalescence; that with the Infantry of the division the Artillery be available for fighting to its last gun; that the Infantry thoroughly know the operation of the Artillery, the Artillery that of the Infantry; that, above all things, every general, whatever arm he belongs to (including the Cavalry), be master of those principles of fighting practised by the two that employ fire. And why for an Infantry general should it be harder to observe and to judge of Artillery fire than of Infantry fire if the Artillery, by batteries and Artillery-divisions, have become steady in fire? There is no reason. At all events, every officer must, on this ground, be from the first more solicitous to gain acquaintance with, and learn to judge of the nature and character of all arms. A general of Infantry, of Cavalry, or of Artillery, is nonsense. We require but one general. He must, indeed, be able to ride in all saddles.

The quarrel about the 'principal arm' is, then, an idle one. Nay, at many points in the fighting at Wörth, Vionville, and Gravelotte, the Artillery has already been seen playing the part of principal arm. And wherever the Artillery fails to put in its full fire power, there nothing decisive will be attained. But, if we may draw conclusions from the exercises

of peace, it seems as if the needful understanding of the power of Artillery fire were by no means universal among the higher leaders of the troops. Otherwise, much that has occurred would not have been possible. At any rate, the Artillery must develop great circumspection, if it is not to sustain some quick catastrophe at the hands of hostile Artillery and Infantry. Therefore, as regards the Artillery, everything turns on coming into position in the quickest and best way and fullest numbers possible, and on ranging earlier than that of the adversary. If it attain this, and use modern projectiles, it will in many cases play a decisive part, even against Infantry. There can no longer remain any doubt on this point. If it attain it not, then Infantry fire will put it, in turn, out of action, and people will in future read, not of 'a battery of the dead,' but of whole Artillery-divisions. With this strength and weakness of the Artillery the leaders of all arms must have full acquaintance. The Artillery, indeed, must not deceive itself here, and should therefore in peace time have learnt three things: 1st, circumspection and power of judgment; 2nd, to hit; and 3rd, to make good all its fire power, that is, to open fire sooner than the hostile Artillery. It seemed needful at this point to emphasise this vital question of modern Artillery. But it must not be overlooked, that if even the best Infantry conduct itself thoughtlessly, its term of Tactical existence may be at a minimum.

That the estimation of Artillery has been in an important degree enhanced is a fact due not merely to improvements in the gun and projectile, but rather, it has only arisen through the change that has come about in learning how to use this arm, that is, in the Tactical training of the *personnel*. But, as in Germany, so also in the other armies, progress has been made; and every officer should know this, so as to form an approximately correct idea of the importance of the adversary and tread the battlefield with some completeness of preparation. Now, in Germany at least, the Tactical training of the Artillery has undergone a change more important, and fuller of result, than that visible in the case of any other arm. Not so very long ago people could still speak of the Artillery, in Germany at any rate, as of a 'technical' arm. And, to tell

the truth, it entered on the war of 1870-71 with a preparatory instruction limited as the word implies. But if this 'technical' Artillery was often so important in its operation, how will it appear now at last, when a high technique is united with progress in Tactics of which in 1870-71 only few prophets allowed themselves to dream. But prophets there were! It needed time to put them in positions of influence. The training of the Artillery has now been separated. The period for fire instruction has been employed at the shooting-school, instead of being spent on the benches of the Artillery and Engineer school. Officers not on the active list have been attracted to the shooting-school. There is a whole method of training, which need not be discussed in detail, for attaining technical proficiency in the art of shooting. There are Tactical exercises and Tactical shooting in the country. The Infantry and Artillery have been brought into organic connection. Principles have been worked out relating to reconnaissance, coming into position, observation, and direction of fire. These matters, and others which I will not publicly touch upon, prove that at last the Artillery, after a long process of time, and on a basis of sound principles drawn from experience, has worked its way up to the position of a Tactical arm, about which all former Tactical ideas may be considered antiquated. And in future, if ever, ignorance will be paid for on the battlefield with streams of blood.

Infantry and Artillery are the decisive arms on the battlefield; and whenever they appear there, their resources are understanding and co-operation. This extends also to the Foot-artillery, because the increased effects of fire will force the defender to use considerable artificial protections, for whose destruction the fire power of Field-artillery cannot always suffice, especially in the case of positions prepared well beforehand. For this reason armies will take into the field guns of greater calibre, whose effect must be likewise clearly understood, at least among the superior leaders. Here, then, asserts itself a new point of view in Tactics, which comprises also the arrangement (defence) and the attack of artificial positions. He who feels himself the weaker will be anxious to increase his power of resistance by artificial pro-

tections. But the rôle of the weaker (the defender) may become that of any arm, and any army. The higher leadership must, therefore, be familiar with the principles that apply to the establishment of strengthening works, while the corps must be familiar with those that relate to their accomplishment. In future, for this reason the use of the spade will, under some circumstances, be of conspicuous importance. The recognition of this fact has, in all armies, brought about special instructions, according to which both leaders and troops are in peace time already prepared for these extended problems of the battlefield. The German Instruction for Field Works of the 6th of April, 1898, must, therefore, be as thoroughly mastered by every officer as the Order for Field Service, the Regulations, and the Instruction for Shooting. These taken together are the Bible of Tactics; but, like the Bible, they have to be read and used with understanding! These instructions form the individual parts of one whole. And they show on what close terms Artillery and Infantry must be with each other; how they are the real arms of the battlefield, to which the Pioneers must render services more extended than before in regard to the Tactical act wherewith all are concerned. It is not needful now to say that in this way the importance of the Pioneers is enhanced. But it appears also clearly from these facts that in future we reckon with great positions, artificially strengthened, which must be attacked.

If now, as formerly, the horse be the principal weapon of the Cavalry, and the activity of the latter be realised almost exclusively on horseback, I am yet opposed to arming the Cavalry throughout with the lance. It must inevitably be the case that in future the livelier national feeling in connection with universal military service will give to every war the character of a people's war; and this, perhaps, in greater degree than appeared on the Loire, for instance, in 1870-71. In face of this there is, indeed, the further fact that according to the laws of military service every man capable of bearing arms, up to the age, say, of forty years, becomes part of an organisation in regular bodies. But in a people's war even the cripple is a soldier useful *ad hoc*; and enthusiasm, the

exigency of war, and Government regulations, will force under arms even those men who have fulfilled their duty according to law. To employ Cavalry in the very front—within the Tactical region, let us but bring before our minds the circumstances of the last ten days of November 1870 on the Loire—we encounter extraordinary difficulties. The lance becomes there often a wearisome burden, whose bearer is inclined to discard it. I witnessed something of this sort in 1870-71. The trooper when out on patrol duty has often to pay more attention to his lance than to the enemy; and the rapidity with which everything takes place in the Cavalry increases his embarrassment. In short, for all Cavalry which has the duty of reconnaissance I consider the lance dispensable, nay harmful. But even the experiences exhibited in the history of war are far from endorsing the superiority of the lance in charging. The Prussian 1st Dragoons of the Guard at Königgrätz had a brilliant success against the Austrian Alexander-Ulans. Nevertheless, I would advocate retaining the lance for a certain number of regiments; for example, the medium and heavy Cavalry. But for the light Cavalry sabre and carbine would amply suffice. All regiments must retain a carbine; but to compensate I would at once concede to the Lancers the abolition of the sabre. If the Cavalry require one constant weapon besides the horse, that is the carbine. The correctness of this will prove itself when the Cavalry is used for active operations; but I will not here deal with that matter. Even in Tactical reconnaissance it will be expedient to supply the Cavalry with Artillery and Infantry as soon as it enters any highly cultivated country. Then stops of itself that bold riding of the patrols which is so misleading in peace time; and much which they see and report in peace it is impossible to see and report in war. It was proved in the people's war of 1870-71 that, particularly in the case of reconnaissances on a large scale, the Cavalry was, with the best will to fulfil its task, incompetent to do so. The few pieces of information then attained were due to some cannon-shots or deployment of Infantry. Now, as events like those on the Loire will be the rule, they must be well kept before the mind while considering how to furnish Cavalry with

appropriate arms ; and even then we must not base on it any high expectations. Peace seems to have already induced in our minds a dubious oblivion of this fact ; and it is certain that in no region will so many disappointments be experienced as in the domain of Strategical and Tactical reconnaissances by Cavalry. Hence the higher leaders will, much more often than before, come into situations of comparative perplexity ; and in most cases they will be obliged to fight with all arms, that they may gain any information at all. It must not be thought that such demands are made only during the operations. No ; the Tactical reconnaissance of the present day, especially before decisive battles, will imperiously require them ; and it is not possible for theory to predict the measures that will best lead to the goal. But I am convinced that here is the ground for serious deliberations, inquiries and experiments, these last of no simple kind ; and that here must present itself much that is new in the means for mastering enlarged principles.

Among the great armies there subsist no longer any important differences in the weapons, training, organisation, and employment of the several arms, or of the battle units (divisions). Nor do they much differ in their principles of fighting. In numbers also they are about even. There remain but two departments in which a superiority can be arrived at, a superiority we certainly cannot accurately estimate beforehand. They are : Tactical training and moral education. Both must, therefore, be raised to the highest point.

To the Cavalry falls the third *rôle* in the battle. In the present condition of Tactics, it is on the battlefield an assistant arm to the other two, and cannot be the principal arm, except after the decisive moment, or before the battle begins. This is attributable to the complete change of circumstances, especially the alteration in comparative numbers of Infantry and Cavalry, and at the same time the increased masses of the armies. It is true that at Vionville — Mars la Tour, on the 16th of August, 1870, the Cavalry played a foremost part on the battlefield. But the case remains an exception. Neither in the French war nor in the Russo-

Turkish war was anything seen like that. Besides, the behaviour of the adversary at Vionville really favoured the action of our Cavalry ; while neither at Wörth nor at Sedan did the French Cavalry, for instance, despite its sacrifices, ever exert an influence worth mentioning on the course of the battle. Even at Vionville, however, the Cavalry was unable to bring about a decision ; and it can never do so in future. But, for all that, the business of Cavalry remains, as it always was, to throw itself into the combat wherever any prospect of valuable result offers. But firearms command much greater zones than in times past. Rapidity of fire has increased in important degree. Neither of these facts can be balanced by any improvement in the speed of horses. Smoke has been done away with. And all this narrows the Tactical employment of Cavalry, makes the leading of it harder. Notwithstanding, circumstances will arise on the field of battle where an enterprising and effective Cavalry will see enticing objects to charge at any stage, even up to the decision ; and at them the attack must under all circumstances be delivered. Special attention must still be given to subdued Artillery and beaten Infantry. In these cases the enhanced effects of fire do not repeal the law of speed ; still less is that the case when the decision has taken place. The battle of the future must produce pictures of the battlefield of which no presentation, however serious, can furnish any sufficient notion : multitudes of Infantry without ammunition, whose *morale* is reduced by wear and tear to a state of irresponsibility ; of 'batteries of the dead,' unable to move ; of colours and military badges, if taken into the field. So the question will be to increase a spirit of enterprise in the leaders, and to quicken their Tactical judgment. The Cavalry leader must watch his quarry with the eagle's patience, but hurl himself upon it and take it with the eagle's decision. In this way the Cavalry placed upon the field of battle, and just in rear of it, can do important work by making the decision more decisive. It may render the adversary powerless, and perhaps increase his losses to an unexpected degree. For human nature does not alter. Its moral weaknesses and defects can

be turned to the best advantage only by the rapidity of Cavalry.

It is, probably, needless to make specially prominent the fact that the Cavalry must also be pretty well accomplished in fighting dismounted ; and must, further, be able to charge in any strength and in any formation. Whatever an arm is to be capable of in war it must diligently practise in peace. So I consider that the Cavalry has as much need to practise the charge in large numbers as the Infantry to practise the combat by masses of skirmishers, or the Artillery to practise shooting as if in battle in a district as little known as possible.

It is not intended to write an epitome of Tactics. But, rather, different incidents are taken from military history and considered in relation to the effect of modern weapons, so that we may deduce therefrom the Tactical principles and forms which promise successful result under fire.

For a theory which does not rest on a basis of practice and of the history of war will never lead to right conclusions.

The Regulations for the Infantry of the 1st of September, 1888 (printed 1889) ; those for the Artillery of the 27th of June, 1892 ; those for the Foot-Artillery of the 14th of March, 1889 ; and those for the Cavalry (scheme) of 1893, are, indeed, the Tactical residua of warlike experiences. Yet the consequences of smokeless powder, of the small-bore rifle, and of the considerable increase in effect of Artillery fire, cannot yet be by any means surveyed with a full degree of certainty in their several bearings on training, on the leading of troops, on Tactics, and on the science of fighting. So that close discussions of these points would be valuable, even though no further end were gained than a stimulus to reflection.

There has, during more than ten years, been a great deal written about the importance of fights by night, with a view to meet the losses, which in future will presumably be great. And there are 'Tacticians' who intend to attain by night what they have no confidence in undertaking by day. In special circumstances, and within certain bounds, fights by night may attain results relatively great. But it is impossible to speak of night battles. And only by battles are wars decided.

Why, then, stop to deal with accessory things, as people are now doing?

For the same reason the so-called 'theory of hollows' has recently, as an excrescence from the 'Task method,' found many disciples. Irrespective of the fact that the necessary hollows might be hard to find, the full use of them would in most cases lead to a deployment, perhaps on the confines of close-range fire, and therefore bring about the very thing one wishes to avoid, great losses. This would occur, too, without the possibility of properly fighting the enemy up to that point, and without the prospect, after that point, of attaining superiority of fire.

Another view is that lines in single rank, extended, should be urged without interruption over all obstacles in the already prescribed direction of the attack against the enemy, till they have passed the confines of close-range fire; that all successive units should follow; that the step should be either the rapid pace, or indeed the double; and the idea is that from that stage only the advance should be by rushes. Again, another view advocates creeping up, with rests; this method to be used from the time the medium range is reached. And a further view is that the areas of medium and close ranges should be crossed by rushes of not more than 30 paces; and so on.

Such attempts as these we neither have any right to blame nor must we, without further words, designate them incorrect and inapplicable. Tactical harm would only arise if any one of these 'fighting methods' were elevated to an instruction. For in actual war there may come occasions where demands are made upon this Tactical 'box of patterns' within the same unit, according to the nature of the country, the fire, and the task. This freedom must still be granted to the subordinate leaders, for the simple reason that no other arrangement would essentially agree with the combat by masses of skirmishers. But some time the instant must come when multiplicity yields almost or entirely to unity, that is, in the measures used at close ranges. But, even at distances of 600 metres, some cover or other can often be used. In any case, all good Infantry must nowadays be able to work its way forward, creeping, doubling, rushing, and

so forth; this it must have learnt. It matters not that under such proceedings the relative simultaneousness must collapse. We no longer need this simultaneousness till the assault takes place. Then, however, we must have it.

Again, those protective shields and coats of mail which in Danish and other quarters have been fitted up as protections from shot give no promise of employment in the field; while the construction of rifle-pits, and so on, by spade work, will in future wars play a great part in the battle. Nor will these be used only by the defender. The assailant also will find occasions for their use. For in all probability there will be battles that have continuations lasting several days. And that will be by no means a new thing. One need only remember the American war.

In Tactics one finds that longer and shorter epochs are marked by distinct forms and principles. These epochs in the history of Tactics comprise centuries where Antiquity and the Middle Ages are concerned. Since the invention of gunpowder these periods are shorter. And from the first appearance of breechloaders (1864) formations and instructions have been subjected to perpetual change.

The Tactical alterations are decided chiefly by the armament. But what does not alter is man.

It is well known to be a law of nature that, when two men or several men are striving for victory, they make themselves acquainted with the means of fighting used by their opponents; and that, so soon as one side recognises a superiority in the fighting method of the other, it adopts it, so as to overpower the adversary by the very means he himself employs.

So, for example, the Prussian company column may be recognised in all hosts to-day; so is the swarm of skirmishers everywhere become the chief formation of the Infantry for combat, fire of skirmishers the chief kind of fire; and in all these important questions the German Infantry has been in advance of the other armies. The war of 1870-71 found it, indeed, not at the height of proficiency in turning these principles to the best Tactical advantage. So that it—because also it was opposed, without preparation, to a very superior rifle—had not drawn the right conclusions respecting the

attack. But, after all, from the time of the August battles the German Infantry was able to find out more suitable forms and make use of them without any difficulty.

To Tactically combine movement with the operation of fire, and to raise this combination to the highest conceivable completeness, was a task whereon the great Frederick laboured during a long life. Since breechloaders established their dominion Tacticians are continuously occupied with the same question.

But the times are different, the weapons more perfect. On the one hand the great King could lead forward his lines in close order, marching in step. He was not compelled to have them halt and lie down, rise, advance, and so forth. Without this, and without having already sustained at long ranges any material losses, he overwhelmed the adversary himself with mass fire, and, upon ranks thus shaken both physically and morally, he delivered his assault. Now, on the other hand, hundreds fall under the missiles of a foe who is hardly visible, and is therefore difficult to fight. Besides, the act of combat lasts substantially longer.

Fields of fight are swept by a wasting Infantry fire, even from 1,500 metres downwards. The main question culminates in this : how these distances are to be traversed with the greatest possible care of your own forces, and how the enemy is to be reached from such range that you may inflict on him a continuous, effective, and shattering fire, while you on your part have not lost the requisite fighting power. The excellent fire-arms of the present day, to consider the matter theoretically, are during the conduct of the combat chiefly to the advantage of the defender ; yet by a close inquiry later on we may recognise also several advantages for the assailant. But, assuming that the contest is frontal, the assailant and the defender can, indeed, put equal numbers of men side by side in the same space. However, more men of the defender can shoot at the same time, because he is already deployed for firing, perhaps also in more than one line ; while the assailant has still this to do, and in doing it will suffer constant hindrance by his losses. The occurrences at Point du Jour teach that neither equality nor superiority of fire in front is to be attained

by a simple superiority in numbers on the part of the assailant. There is not always cover, and the assailant has to advance for a certain distance and become exposed. The defender need not. If the defender do so, it is at moments when the assailant is shaken, and therefore become less dangerous. So, from the grazing fire at long ranges, and the prodigious penetrating power of small-bore rifle bullets, there arises, first of all, the necessity of preserving our forces as far as possible, so that they may have their effect. As to the means of doing this, Tactics should suggest them to us.

It is evident that the use of ground must play a much more important part than it formerly did, and that this applies, of course in clear weather, to stages even earlier than forming up. Already in marching to the ground for forming up, it will demand more attention, and for this purpose the advanced guard must make timely and busy use of good glasses. Certainly both requirements exhibit dangers. The use of ground must not lead to hiding. In presence of this fault, not to mention other evils, the keenness of attack particularly suffers, that keenness whereby the German Infantry, despite its defects, has without doubt been highly distinguished. I do not here mean a thoughtless gallantry, but the deliberate expression of will-power, especially that of the subordinate leaders, always of course within the compass of the unit. Every Infantry will, then, come into a situation where it must expose itself, if only in moving from cover to cover. But the combat must be executed with vivacity throughout. Now, whoever carries his mind back to the fighting method of earlier times and of actual war, and compares it with that of the present, will admit that much of this vivacity has been lost, and that most of all a groping uncertainty, not justified by the new weapons, makes itself remarkable. The assailant will now in many cases be absolutely compelled to deliver his fire at medium ranges; and this fact of itself impresses the modern fighting method with the stamp of slowness. If in actual war such a characteristic become still more marked, then again, precisely for that reason, all must be done by every means to strengthen the Tactical spirit of attack. Thus,

a use of ground which is not only correct but keen, in short the impulse 'onward,' should be inherent in the corps, and must exert itself with elemental power. But this principle of Tactics is not always supported by the pure Task method as this is often employed. And here I perceive a very important drawback: this lies in spoiling the vivacity of Infantry fighting.

The use of perspective-glasses leaves out of account the general view, in favour of the particular. But this fact is not of the essence of the instrument. Its use, like that of a weapon, has always to be learnt. People have above all to familiarise themselves with a routine of 'searching' after cover, from the simple furrow to the slope, or the skirts of a wood. But in this connection, wherever the post of the commander be, a general scrutiny from thence must be taken with the naked eye. Particular things have happened which seem to make it necessary to point this out.

Strategy has to take care that at the point where one desires to strike, the blow be delivered in the most effective direction, and with the greatest possible superiority of force. Strategy requires, therefore, that an assured view at each individual phase of the whole situation be attained as regards the quantitative estimate of time and space, and of material and political facts, and the making full use of all means of communication. All Strategists have been hard workers, good reckoners, possessing critical knowledge of theatres of war and of warlike history, and able to recognise whatever, with respect to temporary requirements, may advantageously contribute to superiority of numbers in a definite space and certain time. Strategists have, therefore, always been scientific also, and, if you will, men of a system or of a method, namely that of their genius. He who will direct the great structure of a host must himself have either calculated or examined everything which has reference to the direction of masses. The Strategist, in this work, cannot do without assistants (officers of the General Staff). He must let them do the work first; but the examination and final orders rest with the chief of the General Staff.

The bulky hosts of the present day make a principal

claim already in time of peace, as regards all kinds of works, preparations, arrangements and dispositions. Strategy is organised for such and such a number of definite cases, with their different requirements. The duties are distributed. It has become more than ever a science, but also more than ever exposed to the danger of maturing a monstrous bureaucratic machine of numerous wheels which gear into one another, and of educating and training up heads of departments, instead of officers of the General Staff. Each holds a definite position in this gigantic machine; and for each there are three, or even four officers at hand, as substitutes, to assume the same position, the same occupation, the same track. If one of them be transferred to another track, at first all does not go well; for he cannot know everything. The 'Russian' cannot do the duty of the 'Frenchman'; and it may be that both know foreign armies better than their own. That a system of wheels so gigantic as this may work on undisturbed, there must be at the top a man of assiduity and genius, who in some measure carries in his head the great features of every possible warlike event.

This character properly belongs to-day, more or less, to every General Staff. It were foolish to attempt its denial. If the necessary generals exist to lead the armies, and so on, then a head of department may suffice. Indeed, Napoleon the First had only a *Günserich*! If, however, one day they do not exist (and the mediocrity of mankind indicates this as the normal condition in all spheres), we can hardly complain that warlike history is no longer cultivated in the necessary degree. The proper pursuit of that study may in peace time be a principal means of preventing the individual from becoming, under subsisting conditions, a pedantic head of department, instead of an energetic officer of the General Staff, well fitted for practical work, and accomplished in the history of war. It would be a wholesome thing if no officer could get a position on the General Staff of the army who had not been in the section for warlike history. Whoever has a taste for warlike history and possesses imagination, whoever has learnt what one expects from these two things, never becomes a bureaucrat. He may not become an exquisite chief of a department, but

he will be all the more an efficient and serviceable officer of the General Staff. And there is no diminution, but rather a growth, in our love for the history of war, when we have once acquired a taste for the thing. Besides, the masses of the future will, in the case of actual operations, forbid any master-strokes of Strategy like that which Napoleon displayed in February 1814. They will compel the use of the very simplest schemes, to prevent one army being overwhelmed by the other. And the dark sides of the modern General Staff bureaucracy in every country would not show themselves until the gigantic polype of a modern host should one day be thrust out of the familiar tracks by some unpleasant incidents.

Unfortunately, this bureaucracy has also been promoted in another respect. Formerly an officer of the General Staff had to command a company for about three years, a battalion for two. In short he was always in thorough relation with the requirements of the corps, with duty in all its practical aspects, with life among his brother-officers, and with—Tactics. For some time past these periods have in most cases been reduced to one year. And, in such a state of things, what interest can an officer have in the corps when he knows quite well: 'in one year I shall be quit of this employment, and again sit in my office!'? His interest is purely personal, and, as a rule, this only damages the corps. A company, for instance, which has been commanded two or three years by such officers, lacks that firm inner texture which is needful to it. In several cases the transfer of officers of the ranks concerned to practical duty has not been at all required, and it seems indeed to be thought no longer necessary for some individuals! Since the war academy was brought under the General Staff, the students at that college consider themselves already as in waiting for the General Staff; and now the bureaucratic life goes forward from years of comparative youth, though, indeed, the requirement ought to be made that no one become major on the General Staff who has not put the men belonging to one given year through the whole period of their service. In such a way this officer learns the needs of the corps. And that is precisely the knowledge that any officer of the General

Staff must have! But, good Heavens! he has hardly joined the corps when he is already 'missed' in the General Staff machine. For with fresh hands this does not work smoothly at first; and concern for always 'keeping the machine under steam' leads to the officers being too soon recalled. Hence the increasing preponderance, in this occupation, of the bureaucratic over the living part. Unfortunately it is indeed not always possible to prevent it.

In the case also of the General Staffs of the troops the duty has become more bureaucratic. The documents to be settled increase from year to year. And so the officer of the General Staff is here too, in main part, a head of department. The labours required for manœuvres, journeys on the part of the General Staff, and other exercises, cannot furnish the needful variation; and they are also almost exclusively of a mechanical nature. The same thing which is new in the first year is repeated in those that follow, only with the difference of another neighbourhood. And it will not be contested that for the accomplishment of all these labours little judgment is required, while a moderate degree of mechanical proficiency may be enough to give satisfaction. But the officer of the General Staff, just like every other, can quicken his Tactical judgment only by practical discharge of duties, experience, and exercise; and Tactical judgment must to-day more than ever be possessed by him. It is not enough to have knowledge of the adverse host, its arrangements, and the theatres of war, and to sift and draw up reports rendered in less or greater detail. Besides, to do just this last we have always to make demands on Tactical judgment. It is, indeed, in the nature of 'Strategy organised in peace' that the gentlemen of the railway department must especially become bureaucrats; and there are several considerations and requirements which will most likely prevent any great alteration in that.

The war of 1870-81 teaches the enormous superiority of Strategy over Tactics. The superiority of Strategy proved itself so great that, even with moderate Tactics, amazing results were attained, so that the Germans' success was, properly speaking, due in the main to their Strategy. But

we must certainly in this connection not forget that the moral qualities, the imponderables, were throughout present on the German side, and that in high degree. In future, armies will not differ much as judged by a material standard, and yet Tactics must smooth the way for Strategy, while the Strategy receives its results from Tactics. Education in Tactics, in the case also of officers of the General Staff, must, therefore, be thorough and brought to the highest level. For victory will demand greater exertions than at Wörth and Gravelotte, increased consideration, more certainty in the movement of great assembled masses, and a better co-operation among the masses, together with well-maintained understanding between them. The masses which Strategy places in readiness will also have to remain assembled for longer time; and the business relating to their maintenance, and to increases and diminutions in them, will have to satisfy high demands. The so-called 'greater Tactics' will also become necessary; that is, the process of moving army corps and armies in brigades and divisions in close order, outside the area of the fighting itself. This must, however, be learnt in peace time. For reconnaissance, especially of extended positions, as at Gravelotte and on the Lisaine, will presumably require much more time and more versatile exertions than it used to. It will require a day merely to ascertain the wings of the enemy, and no order for battle ought to be given at all till this is done: a matter that cannot be over-estimated, having regard to the circumstances of the 17th and 18th of August. But even then very much remains to be completed in considered planning of the battle. If this be accepted as probable we shall, when the question is of attacking a great prepared position, have to return to the Napoleonic principle of assembly before the battle, assembly indeed in masses, even exceeding those at Gravelotte. Yet the movement of these masses, from the preliminary to the definitive forming up, must be learnt besides.

Speaking of the measures for assembly, the organisation of Orders, Reports, Information and Reconnaissance during the assembly, the needful subsequent perfecting of these matters in the forming up, the Order for battle, and the guidance of it

in its Strategic or Tactical nature, to all these domains impulse and object should be communicated from the great headquarters ; thus, one hand should have guidance and be able to exercise it. And herefrom we again conclude that the position of the central directing authority should be chosen in congruity with the blow to be struck ; and the greatest care must be used to keep up a connection with the Cavalry divisions, with the chief commands, and with the army corps. The former may then be put in a condition to save time by furnishing direct Reports and sending only duplicates to the army commanders. These Reports will for the most part be the result of Reconnaissances ; and thus it may be that the general impression produced by the Reports render it necessary for the central authority to alter its position. But also, during the deployment for battle, and during the battle itself, the thread of Communication between all the high authorities must never be broken. For the perfect working of this system is the only guarantee for guidance.

It cannot yet be estimated how far the captive Balloon fulfils the hopes that have been entertained of it. I hold it now, as before, to be a capricious means for Reconnaissance and Report, the best means continuing still to be bold and well-mounted officers. But more system will have to be brought into the thing ; and when this is done we may well take it that, as a rule, Reports and Orders will come in to time, especially if the assistance of the telegraph be used. I do not hesitate to say that the most important thing for the great headquarters is a punctual organisation of the system of Reports and Orders. But for this reason everybody whose work does not associate him with that system must be removed from it. One may take it that the chief battles will take place on an area of about 18-20 kilometres. If headquarters be on a wing, whether in the forming up or during the battle, Reports and Orders will arrive too late ; if in the centre, the times required will all be reduced one-half. But we must note, further, that armament and the employment of Cavalry along with Artillery, perhaps in advanced positions, determine the central guiding authority to effect the provisional forming up at a distance of about 12 kilometres at

least from the position the enemy has taken up. The distances between the authorities will therefore increase. And here an arithmetical consideration is forcibly brought to the attention of the central authority. For that consideration indeed no model may be set up ; but by experience, and by contemplation of some battles, an approach to accurate designation may be reached in Strategy. Thus, to seasonably organise all the authorities of higher command ; to seasonably furnish all authorities (starting from the army corps) with sufficient machinery for Reports and Orders ; also, by means of a well-thought-out system, to practise the authorities in making their Reports as quick and as pertinent as possible, whether these are to go up, down, or laterally ; such is the requirement needed for guidance which was not, for example, in 1870-71 fully met. This is not the place to indicate how such a system must be planned and kept in activity. It is enough to refer to the phenomena in this connection appearing at Gravelotte and elsewhere. Everyone can then answer for himself the principal questions. But one thing is certain : the army which comes up to the requirements in this domain has a great advantage, and can solve problems of superior difficulty, like those which presented themselves to the Germans on the 17th and 18th of August. Whoever has faith in the idea of a central authority must study this example, which plainly comprises all lessons that bear on the planning and direction of the future battle of masses.

Now such a battle will render necessary, not merely one forming up, but more than one, perhaps several. This again appeared distinctly at Gravelotte, where indeed the Germans carried out really three processes of forming up. The first took place on the road Rezonville, Mars la Tour on the 17th ; then on the 18th on the road Gravelotte, Caulre Farm, Doncourt, Jarny ; and at last, on the road Gravelotte, Verneville, St. Marie aux Chênes-Auboué. Certainly the motives of the three processes of forming up were of very diverse order. The primary object of the first (at noon on the 17th) was to continue the battle on the 17th of August : but later, for reasons that need not be particularly discussed here, that continuation was postponed to the 18th. The first forming up, on the 18th, was

the consequence of a doubt which had meantime made itself felt as to the whereabouts of the enemy; the second was, along with the direction in which the IInd Army Corps marched, the result of having at this time made out where the enemy was drawn up. Now, granted that Reconnaissance on the 17th and 18th of August should be called anything but perfect, it will in future be very difficult to ascertain the wings of the enemy, even with better arrangements in this domain. So one will probably be unable to avoid the necessity for several times forming up, even completing that process. And, in fact, there are here indications as to the way a battle must be in future guided; for it is impossible to conceive of this without a forming up which shall be expedient and accordant with the Strategic design. There are many reasons why, after previous formings up that are provisional, the definitive deployment to form up for battle must take place in future under still greater difficulties. Probably it will be accompanied by continuous fights, perhaps by Cavalry battles too; and it will besides demand much more time. The armies will, therefore, even in the case of the provisional formings up, have to be suitably echeloned and sufficiently separated one from another, so that they may, without making circuitous movements, be equal to changes of position and of front at any instant. Herein lie, I think, several new discoveries for great Tactics, or whatever you please to call it. For since the invention of smokeless powder the defender has such great advantages in the choice of position that he will use all means, as he now can for the first time, to deceive and mislead the assailant. And, so far as he succeeds in this before the fight, the defender will himself have advantages again in manœuvring, in the movement of masses, and may thus very well attain superiority, and, indeed, win the battle. Active or Tactically operative defence is really possible now for the first time. And why should not a commander be forthcoming that can, from the sum of these changes, extract all the advantages they contain?

Hence it follows that under such circumstances in future the headquarters must remain within the space required for forming up on every occasion; and, further, that smokeless

powder influences in high degree even the decision of the central authority. For it must make all areas greater, all times longer, and all problems before the battle more difficult. But a further conclusion is that especially the officer of the General Staff must have correct Tactical perception, a thing he can gain only by practice. Certainly a presumption can for the most part be formed as to the general alignment of the enemy's position, deduced from Strategical considerations, aims, and principles. But the examples of Königgrätz, Gravelotte, the Lisaine, and Orléans, teach indeed what serious errors have already in the past been possible as to the details of an alignment, and as to the question where was the vital point of the adversary's position. The new weapons contribute greatly to mistake and consequently to uncertainty on the part of superior leaders.

It was doubtless inherent in the German method that Tactical capacities did not distinguish themselves so much as Strategical. The method hardly permitted any except members of the General Staff to reach positions of high command, while on the other side the Tactical school developed only men of routine, whose proper sphere did not exceed that of detachments. The needful connecting-link in the chain of leadership was wanting; I mean such a leader of brigade or division as was secure in all saddles. Thus in 1870-71 we had properly speaking no battle Tactics, but only detachment Tactics in the battles. Though our greatly superior Strategy won us success even with those means, we cannot indeed reckon on such favourable circumstances again; and it thus becomes all the more a precept of Tactics to learn fighting on a large scale, to find the Tactics for the battle of masses.

Although Strategical discussions find no proper place in this book, yet I think I ought to mention a general point of view which has some connection with the assembling of troops before battle. Moltke said, 'March apart; strike together.' The maxim, by Moltke's genius, at the time of his Strategy, brought about the greatest triumphs attained since war was waged. To dispute that would be to attempt the denial of facts. But if the present had been still the day of Moltke's operations, I am convinced that the changes with which

Strategy must also reckon, would have determined him to important modifications; nay it would have turned the principle, under some circumstances, into the aphorism, 'March together and strike together.' Presages of this show themselves clearly already in the operations about Metz. But the sentence itself is often misunderstood and wrongly interpreted. People will in future also march apart, but not so long as hitherto; they will earlier reach the condition of assembling; and assembled—together—solve part of the problem of action. But I would above all things warn against any future thought that a jaunty Strategy can return, like that conception of making war to which, encouraged by the skill of Moltke, we have accustomed ourselves. The general laws for the plan and prosecution of operations will remain; but the operations will take longer to carry out; a great deal of time will be claimed by each successive section of them; and the results will probably turn out less decisive, whoever wins. This is attributable to the masses that have to be moved, and to the resistance they will meet with from the masses of the enemy, in connection with entrenchments, fortresses and railways. Certainly masses have their greatest enemy in themselves. But we must learn to master this enemy. And many signs indicate that in Germany this is being taken into account, as in the instance of equipping with tents. Whether it be successful is a different question. But still both adversaries will suffer the same harms, and so the matter for decision will be which of the two sides is able to maintain his armies best and longest, and knows how to keep in reserve superiority of force. Not only by battles do you succeed in subduing your enemy. Hunger will become a more effectual ally, as it was already in 1870-71.

It is entirely wrong to suppose that Strategy ends with the battlefield, and that Tactics alone dominate that place. In the battle the two run into each other. Again, Strategy is, except as regards a few great principles, subject to changes which depend on progress in science and civilisation. From its very nature, Strategy considers the full use that can be made of each advance. And thus each officer of the General Staff, so far as his science is concerned, and with regard to

what may give him a superiority, is ever ready to promote a wholesome advance.

But if Strategy be subject to important alterations, in the case of Tactics change is the only thing constant. Hence the instructions should be wise ones, and leave a certain scope for the play of the thinking faculty. If this be not done, we need fresh regulations, whose provisions should be kept up to date; and then by rights every army would have to be furnished with a printing establishment ever actively attending to the matter. We have indeed about reached that stage, but this is due to the fact that we had put off our reforms far too long, and so were obliged to make up in two years the neglects of two decades. However, Tactics are much too often treated as fortresses are. Instead of labouring with an eye to the future, instead of discovering the laws and the structure of defences for the future, as a rule the military architect goes halting in rear of what the times demand, declines into all possible trifles, and is ruined in forms. As the fall of many a fortress finds explanation in the excuse that at the moment of its completion it was already antiquated and no longer defensible, since a destructive gun is quicker made than a fortress, so the armies have been beaten which lacked both insight and power to abandon in time their out-of-date 'Tactics,' or went astray in the search after Tactics that should suit the age. And this will be so still. But there are armies, too, which in spite of seasonable regulations have had many a beating; the cause whereof was, that Strategy was neglected in favour of Tactics, that the Strategical thinking faculty had not been systematically schooled. This is, however, a problem which goes necessarily hand in hand with the schooling of the Tactical judgment.

Both Strategy and Tactics rest entirely on the basis of warlike history and warlike science. Both can be learnt in great measure. The way in which individuals make use of the matter learnt shows then the gift of leadership, talent, genius, mastership. A correct school must therefore always view Strategy and Tactics as realms intrinsically coherent, and its work must be pervaded by this notion. All great captains have proceeded on this principle; and they are the very people

who from their early years have mastered an immense intellectual work. If Strategy be neglected the skill of the individual never rises to the high level of the art ; he moves, rather, only in lower spheres ; he does not learn to reflect on the nature and causes of the operations, or their connection ; and in the most fortunate case he remains but a capable mechanic. This has everywhere brought its own punishment. And therefore the disciples of Mars should be ever encouraged to study Strategy. His Majesty does not find one Strategist enough ; he cannot have enough of them ! This sermon ought to be preached ; but we have recently known the opposite still said, and—accepted for true ! Why is it then that so many capable Tacticians are useless Strategists ? Why are such men uncomfortable in this world ? There are so many causes indeed that we may not even reckon them up ; and unfortunately it cannot be said that any constant effort is made to counteract them. If, again, Tactics be neglected, or if they come on a wrong road, it will be impossible to render to Strategy any freedom of operation. The whole army must thus be able to fight at the right time. And to attain this is the business of Strategy.

But in Tactics one must always observe that the quantities it reckons with are men ; and that consequently the psychological motives of the general—though perhaps not all of these—should, ideally, find expression in the same degree in Tactics, that is, in the individual man on the battlefield. The perfect firearms of the present day also teach that it has become more than ever necessary to estimate the importance of psychology in Tactics. The result is that the education of will power in the individual man ought to be the object of our perpetual and intelligent operations, so as to develop that to the highest possible degree, and thus mature in him the resolve that, whatever happens, conquer he will. But this very point is quite too often overlooked ; and ingenious experiments in formations degenerate into a regular virtuosity, to the serious hurt of the matter. For Tactics are never alive and healthy till you practise them in the country. Motives that formerly inspired only the chief commander or a restricted circle of those about him were passion and ambition,

thirst for honour and fame, enthusiasm for the object of the war. These must to-day penetrate the hosts as a whole; at least to the extent of bringing one's own impulse to manifestation in certain degree. Knowing what we are about, we must guide and fully use that stock of moral strength. Our instrument must be a regardless military discipline, regardless like that of the ancient Romans, and of Frederick the Great's hosts, or else the finest principles and forms will remain unreal. Intelligence and habit, fear of punishment and hope of reward, do not suffice for conquering those difficult situations the Infantry soldier nowadays must come to in every battle wherein he means to be victor. Something must be added to those things. The soldier must make the general's cause his own, must carry the same fire in his heart, feel the same ardour. Otherwise he will not rise from behind the fold of ground that protects him, and rush forward again through the rain of bullets.

Wherever one looks one sees a clever idea degenerate into a trick of the drill-ground. From this cause the echelons used formerly by the great Frederick became the favourite bit of Tactics employed by men of no understanding, who failed to see that the times had long changed. It is like that in our own days. People have fallen from one extreme into the other, have given up logical coherence: '*La recherche de la paternité est interdite*,' and the only method advocated is one wherein the activity of the higher leaders has simply no place any longer.

Hordes we must have, but, equally, settled principles for their way of fighting.

The system of hordes or of skirmishers presupposes not only certain instructions, but also that the man be educated from the first to spontaneity, to the development of all his moral and intellectual characteristics and capacities, so that the feeling of honour and duty may everywhere impel him, where the compulsion of form ceases and the eye of his leader does not reach him. But one must ever consider that human nature is fallible, and that therefore personal example must, wherever it is reasonably possible, be brought to bear directly and immediately on the man.

In the last wars the Tactics on the two sides varied greatly, owing to disparity in armament, difference in principles and organisation of the adversaries, and the indistinct knowledge each had as to those of the other; and there were no Tactics corresponding in genius to armament.

It is established that:—

1st. The Infantry of the assailant (German and Russian) was on the average the worse armed. Each suffered, on some occasions, extraordinary losses in its contest with the better armed defender.

2nd. The losses in some measure began at a distance where the adversary was not able (that is, where his weapon did not permit) to return the fire effectively.

In the Prussian-German campaigns there have been several incidents that specially challenge reflection. If a right judgment be used, based on the fact that they happened in actual war, they might be adapted for leading to pertinent conclusions.

In this labour only officers can take part who had some share in such occurrences, who observed themselves, others, and the adversaries, and were so placed that much came within their possible view. Still it is requisite that they attentively follow all innovations in the domain of armament, to avoid teaching anything that is out of date.

This work will concern itself with Military History, with Psychology, and with Tactics.

For these three points of view will be necessary to anyone who contemplates the method of fighting of the future, who has observed fighting in its actuality, who has since that taken into consideration recent progress in technique and so on, but, further, of the strengthening of national feeling and military spirit in France and Russia.

FIRST PART

INQUIRIES INTO MILITARY HISTORY

I. THE ATTACK OF THE 28TH INFANTRY BRIGADE ON THE FARMYARD OF BOR AND THE ARTIFICIALLY STRENGTHENED WOOD OF BRIZ ADJOINING IT, IN THE BATTLE OF KÖNIGGRÄTZ, ON THE 3RD OF JULY, 1866

(a) *The Advance*

ON the 3rd of July, 1866, about 2 o'clock in the day, the 28th Brigade had completed the process of forming up, to the north-west of the Popowitz range of hills. At Alt-Nechanitz, on the right bank of the Bistritz, where the troops had before been drawn up, people could pretty accurately observe the course of the combat as far as Lipa. But in our present position we seemed cut off from all the world. We saw nothing, and were not seen. The short march of the brigade from Alt-Nechanitz had required more than an hour. The reason was that while the Infantry was in the act of crossing the narrow bridge over the Bistritz, which had been restored, General v. Hiller, who was already on the far side, received orders for halting, so that the Reserve Artillery might go by.¹ As the bridge did not suffice for troops to cross abreast in two columns of route, the 28th Brigade halted where it was. Bringing forward the Artillery for preparation of the attack was a correct measure.

Now, after Alt-Nechanitz was taken, F./28th had, by order of General v. Schoeler, followed the Saxons straight to the bridge. But the bridge meanwhile had burst into bright

¹ According to the account of General v. Hiller of the 10th of February, 1890.

flames ; and now good counsel was wanted. With a recklessness worth recognition, F./17th, further to the left, forded the Bistritz, up to their shoulders in water. But apart from such crossing, the question was to save the bridge for the passage of the main body. The great problem was to secure this. And, that it may be known how at need a great thing can be done by using small means with organisation, I will relate shortly what took place. F./28th unbuckled the cooking-vessels, and adopted a country method formerly used for putting out fire in the home of this regiment. They formed two ranks of men, to whom the remainder continuously carried water drawn from the Bistritz in the cooking-kettles.¹ In this way they were able, though using small means, to pour great quantities of water upon the burning bridge. Those men who were actually extinguishing the fire were some of them in the flames and in greatest danger. But the energy of the leaders and the devotion of F./28th succeeded in mastering the fire, saving the bridge, and stopping the holes in the roadway by using boards and planks, which the same battalion dragged to the spot. Thus the smart Rhinelanders of F./28th did here a piece of work that would redound to the honour of trained Pioneers ; but these were not there ! How valuable presence of mind and organised labour are in such cases strikes us at once. For if F./28th had not been thus in readiness, the Elbe Army's chance of interposing in the operations in masses would have been gone, considering just the circumstances it was in ; for it is well known that there were no other means of crossing constructed. The soldier should have precise knowledge of such examples, so that he know how to help at need when the like occurs again.

During this crossing I was on the centre of the temporary bridge. Since the latter had no railing, my position was not pleasant, for the bridge swayed under the perpetual burden of guns and vehicles, while some parts of it were still smouldering. According to my memoranda, there were six batteries each of the 7th and 8th Army Corps. But, in the long time occupied by this passage, I was more concerned with the

¹ According to a communication of Colonel Kneusel, at that time in command of 11th/28th.

thought of what must happen if a few shells fell here. Nor was this idea quite groundless. For I had not yet noticed any decided progress in the battle. It seemed, rather, to be stationary. And, indeed, I had from Alt-Nechanitz been able with the naked eye to make out clearly the advance and retirement of various columns. A certain misgiving seemed to have mastered even the cool and heroic nature of Lieutenant-Colonel v. Schöning (Commander of the 1st/57th).¹ His battalion during the crossing had by the circumstances mentioned been entirely wrested from his control. With vexation and disquiet he looked on from the farther bank, being himself with the 1st Company of his corps separated from the other three. In such circumstances as these time passes very slowly. Everybody feels the situation troublesome. But the more I pulled out my watch the more impatient I became. However, I must remark that this long column of Artillery moved with great quietness and precision; and except for sundry cuffs and blows the incident passed without inconveniences. Nevertheless, I breathed again when the Artillery was across; for there is no more uneasy feeling than to be deprived of all freedom to act, under such conditions. The great thing was that the bridge, which our Infantry had constructed with a care that merits acknowledgment, proved equal to its task.

At Alt-Nechanitz I had noticed few traces of the combat. The long rest there, from half-past 10 in the morning till 1 o'clock, gave quite the appearance of some assembly of troops for peaceful objects. The officers of the different regiments went to see each other, talked together, and shared among them what little they had to eat, but seemed to have no foreboding that the 3rd of July was to become a marked day in German history. Certainly the attention of the groups in conversation was often arrested, as was natural, by the battlefield, which spread itself in incomparable grandeur up to our extreme left, and was covered with gigantic masses of fire and very dark, slow-moving, heavy clouds of smoke. But the talk concerned itself, on the whole, as it would in absolute peace, with

¹ The Roman numerals above the line signify the battalions; the Arabic numerals, the companies; the Arabic under the line, the regiments.

the most harmless subjects. And curiosity did not even seem to be specially aroused when the different aides-de-camp, and so forth, sought General v. Herwarth. The general impression certainly was that large masses were engaged on each side. Even the men felt that this was the case; and I must specially emphasise the quietude and propriety of their conduct during these hours.

Immediately beyond the bridge the picture changed. The first dead bodies that I observed were those of some Saxon soldiers, and before one house a wretchedly clothed woman, who had been shot. Some of the houses near the Bistritz had suffered much. The wide village street gave once more quite a peaceful impression; only its deserted emptiness and several drooping hospital flags reminded one of war. Beyond the place we were met by a Fusilier of the 17th Regiment. As he approached I recognised him for the servant of Lieutenant v. Czernicki (F./17th), an officer who had been my friend from childhood. I had time enough to ask the man after his master, and did not notice that he was carrying an officer's sword and great-coat. He pointed to these, and I understood what the good fellow could not say. His master had fallen, and what the Fusilier was carrying had belonged to him. The meadow-ground of Nechanitz lay so rich and green before us that we hardly found any traces of the not inconsiderable combat that had taken place on the spot. Here and there one fallen, covered with his great-coat, that was all; the fighting-ground was already quite cleared. In Lubno we found the first of our troops. They were the 7th Jäger-battalion, which had been drawn up in rear of the edge of the village to hold, as the fight stood, that point ready for a counterstroke. A word or two called out, and we went briskly on. This is one of the cases where the employment of the Jäger in such a way has been blamed. I cannot agree with the criticism. The Jäger were not used because the fight kept moving forwards. But there is no doubt the bridge had to be secured for every event. And the Jäger seemed created to make good their power of fire in Lubno and the immediate neighbourhood. Measures taken are not to be judged simply by results. But one must always inquire what end they had to

serve, and whether that end was important enough for keeping back a whole battalion. In this case one might well answer, Yes.

Granted that the Tactical measures taken by the Generals v. Herwarth and v. Schoeler, preparatory for the decision, distinguish themselves on the whole favourably (as does also the plan of attack on Probus-Prim) from divers greater and lesser attack movements in the wars of 1866 and 1870-71, still the main thing was let slip, namely to see to it in time that the quicker crossing of the Bistritz should be practicable. At this point one narrow bridge was insufficient. Two or three bridges should have been constructed at or near the spot; especially because ill-fortune in the fight had to be taken also into consideration. If that arrangement had been made, the Army of the Elbe would have been able to come on the scene earlier, and in greater strength. Having regard to Strategical points of view, this was particularly desirable; for in the direction of Königgrätz might very well be the principal line of retreat, and this was from the south more palpably open to a threatening movement than from any other point. For example, had Bor been reached about 2 o'clock, which would have been very possible, a retirement on Königgrätz would become impracticable, and the adversary would for the most part have, on the battlefield, fallen into the hands of the IInd Army. Thus the simplest omissions of a purely Tactical nature brought their own punishment, to judge these things from a higher position. Time, too, and materials for the requisite bridges would certainly not be wanting.

In such cases it is needful that there be specially chosen officers at the crossing-places, to point out to the respective troops their own bridges; and it is to be recommended that one be allotted to the Artillery and Cavalry, another to the Infantry. The bridge for Infantry may, in circumstances like those here, be practicable for less weight. And if this point of view hold good, the construction of a second bridge for the Infantry could offer no difficulties, even if one had been restricted to the means present in Nechanitz. If you have but one bridge, however, a bridge-guard is all the more necessary. There was none at all; and I have a lively remembrance still how taken

aback the Infantry looked when the Artillery, without ado, trotted through their ranks and only fell into a walk on the bridge itself. It was, in these circumstances, the 'law of the stronger.'

The army command, in neglecting to care betimes for the crossings needed, committed a fault that could not afterwards be remedied. The work of the Prussian General Staff does not mention the incident at all, and yet it is one of the most instructive in recent warfare. The Austrian, which, as regards us, has often drawn from the Prussian authority, says just as little. The former, on page 368, merely says 'that the 28th Brigade followed the 27th at a distance of 800 paces.' At first this may have been the distance; but, owing to the event I have related, it lengthened itself to a league. The consequence of this was that the 27th Brigade, although it had travelled farther than the 28th, attacked before it. Could that have been intended? Later in the course of the fight, despite a more hurried movement of the 28th, the two brigades did not again get abreast.

(b) *The Forming up*

General v. Hiller had been placed in a very anxious situation by the unpleasant episode. For, since the 27th Brigade had entirely vanished from his range of view, and there was no one who at this moment could assign him an objective for the march, there was nothing left him but to act for the present on his own decision. Marching on towards Popowitz, he addressed himself to Major v. Sell, commander of the 7th Jäger-battalion, which I mentioned as remaining in Lubno; and this officer, when asked, showed him the direction of marching of the 27th Brigade. Now General v. Hiller ordered the 28th to follow this. While the march was being continued towards Popowitz, Captain v. Schadow, of General v. Herwarth's staff, reached General v. Hiller, with the order to halt the head of his troops, wheel to the right, and form up. General v. Hiller now rode forward to acquaint himself with the situation, and in doing so observed General v. Herwarth himself, who indicated to him a church

tower scarcely visible to the left as his point of attack, and said: 'That is Probus; advance in this direction.'¹ In the sense I understand it, this is 'Task method.'

When General v. Hiller returned to his brigade the forming up was still being carried out, so that he had time to tell the commanders of regiments and battalions the task General v. Herwarth had given him. These then rode forward, with General v. Hiller, over the hill range of Popowitz, so that they also might acquaint themselves with the situation, and come quietly to an understanding with one another. In the meantime the battalions had formed into 'the column by the centre,' in two Lines. But there had not been done yet the 'nicer labour' that concerns alignment and object. This was now made good according to regulations, so that the brigade fronted due east, the battalions being aligned as accurately as if on a thread. As Colonel v. d. Osten (57th Regiment, 1st Line) was a real artist in these things, the whole matter came off well. At any rate, the time spent in these arrangements, made quietly and with knowledge of what one was about, found its reward in the fight later (Sketch I.).

In the First Line were 2 battalions of the 57th Regiment,² 1st/57th to the left, F./57th to the right. In the Second Line, 2 battalions of the 17th Regiment,³ IInd/17th to the right, 1st/17th to the left. The high land, and the whole space up to the Probus-Prim plateau except the expanse of meadow-ground stretching before that place, were covered with rich fields of rye as tall as a man. All commanding officers were in front. In the regiments there reigned a stillness and attention which could not be exceeded on the drill-ground. When General v. Hiller had convinced himself that the front was correctly taken he went again to Colonel v. d. Osten⁴ (57th Regiment), pointed at the southern point of the Popowitz Wood, and said some words like these: 'That is the direction at first, afterwards the church tower

¹ According to a written communication from General v. Hiller.

² The IInd formed the escort of the Reserve Artillery.

³ F/17th was with General v. Schoeler's advanced guard.

⁴ He died in Berlin a lieutenant-general.

to the left' (that of Probus, Author). 'Let fly the colours!' When this was done Colonel v. d. Osten turned to his regiment, broke out with three times '*Hoch*' for the King, in which the soldiers vigorously joined, and added in his fine full voice: 'And now with God!' The whole of this proceeding made by its quietness and certainty a deep impression on the men assembled. Then the commanding officers again took post in front, towards the enemy. My personal attention (as I stood on the right wing of the skirmishing *Zug* of 2nd/57th) was arrested in the highest degree; I had hardly expected that going into battle would have been like this. What I observed far exceeded my idea.

Our men, who had never yet heard the thunder of cannon, except at Münchengrätz, but had to-day for several hours observed in the centre the columns advancing and retiring, exhibited an excellent behaviour. They had accomplished a march of 23 kilometres over saturated roads, and partly across the fields. For ten hours they had remained under arms and without any provision. The 28th Brigade had received word early, and had decamped early. At half-past 9 o'clock it was standing behind the right wing of the 1st Army, from whence it moved off to the south, and reached Alt-Nechanitz towards half-past 10 o'clock. But whereas insufficient means of crossing condemned it to a long halt, its early march from camp and early arrival on the battlefield remained without influence on the course of affairs. But those long hours once passed, and the battle entered upon, trust and confidence were inspired chiefly by the fine example of all, and particularly the highest officers, and by the calmness and certainty of their proceedings. Since night a fine rain had fallen, which towards 7 o'clock turned to a thick mist. This subsided slowly till midday. The columns of smoke and flames from the burning villages and woods were carried by a light north-east wind, and moved in long lines south-westwards. Towards 2 o'clock it brightened. Events on the high ground of Probus could be made out, but in indistinct outlines only; and it was not till after the height was taken that the weather cleared entirely. In consequence of the rain and mist the tall rye in the fields was thoroughly

saturated, so that when the troops reached the ridge of the Probus height they were as wet as if they had waded up to their necks in water. This certainly affected most the leading *Züge*; but all alike suffered much from the very wet ground, which rendered the advance difficult.

On General v. Hiller's command, 'Brigade, march,' the brigade began to move. At first all the battalions were in column by the centre. However, as soon as the brigade had crossed the Popowitz range, it adopted another formation; for 1st/57th¹ was taken into the Front Line by order of General v. Hiller, who rode with Colonel v. d. Osten and Lieutenant-Colonel v. Schöning (1st/57th) by the right flank of 2nd/57th. Thus the other battalions were caused to shorten their pace, a thing which succeeded perfectly, notwithstanding the Artillery fire. In the meantime 3rd, 1st/57th threw forward their skirmishing *Züge* at the double, the *Züge* in rear following at about the regulation distance. Lieutenant-Colonel v. Schöning now rode into the skirmishing-line of 3rd and 1st/57th, and was with it from that time on during the battle. General v. Hiller and Colonel v. d. Osten, until 2nd/57th was extended, rode somewhere from six to ten paces on my right, so that I was happily able to hear everything they said. Thus, from the time the brigade entered the valley between the Probus heights and Popowitz it had the following formation:—Front Line, 3rd and 1st/57th (at first one *Zug* extended, which was later prolonged and strengthened by a 2nd); exactly in rear of the centre of these two companies (3rd on the left, 1st on the right) 2nd/57th, in company column in close order; about 200 paces to the right and abreast of 2nd/57th, F./57th. In the Second Line there remained for the present IIInd/17th and Ist/17th. The brigade had loaded before stepping off.

Now that we have here set down the movements which first took place we must add a noteworthy incident. When the brigade stepped off, the bands of both regiments began to play. That of the 57th Regiment was at first with the 1st/57th, and when this was taken into the Front Line remained with 2nd/57th. Notwithstanding the wet condition

¹ 4th/57th was detached as escort for Schmeltzer's Battery.

of the fields of rye, the saturated ground, and a very hot Artillery fire, the bands of both regiments continued playing till the Front Line had got to about 250 metres from the abatis of the Briz Wood. The music was quite steady, let alone the usual pauses. And it only ceased when 2nd/57th was extended. The march last played by the band of the 57th was the men's favourite one. And they were accustomed to fill up the recurrent rest between the phrases by breaking in with 'O Hannes what a hat!' This time, indeed, it did not succeed. But the adversary suddenly took up the burden with a thick hail of lead; and I cannot even now forget the comic effect of that moment. The Staff Hoboist had either not noticed or not heard the several shouts of Colonel v. d. Osten: 'Stop'; the leader of 2nd/57th seemed to be unwilling to interpose in the presence of superior officers, and was, besides, on horseback about 20 paces in front. The mounted officers could see meanwhile how near to the enemy we had already approached while the corps itself was as yet unable to see over the plateau. The music stopped almost by common consent. For that, however, not the Staff Hoboist but the enemy had given the signal. The former looked about him in vexation; while Colonel v. d. Osten's voice was heard saying 'Northe, stop it!' at the same moment that the band ceased.

I have anticipated matters in relating this, because it is a type showing how firmly fixed are the habits of peace time; and because, despite everything in it that is comical, or inappropriate to war, there is here still a fine bit of discipline. But, if the habits of peace time root themselves so firmly, there is contained in this innocent example a serious warning. We should employ peace time to educate the man as far as possible in reasonable things only, so that human lives may not become useless sacrifices to erroneous customs of peace. Can another considerable body of troops produce in addition an instance like this?

After we crossed the Popowitz range the picture was entirely changed; just as if the curtain had gone up in a theatre, now a stage lay suddenly before our eyes. And what a stage! The whole of the enemy's front was, in the true

¹ [In the German text, "O Hannes wat en Haut!" (Hut).—TRANSLATOR.]

sense of the word, veiled in flames and smoke, from Prim over Problus, Stresetitz to Lipa and Chlum. Between Prim and Problus one perceived a connected array of Artillery, and on this side, as far as the view ranged, there were skirmishers and columns advancing, colours flying, music playing. The effect of this sudden change was perceptible even among the men. Everyone in the column stretched his neck far out, to see; and, for my part, I can honestly say that I imagined myself to be anywhere rather than in a great decisive battle. Something of the sort must, I think, have been the impression on many minds. For indeed the ejaculation of admiring men made itself heard. And actually, I know not whether any earlier event in history showed more grandeur, but I may say I have never since seen anything which approached this battle-piece in effect on the imagination. When all goes gaily forward, the soldier conquers without feeling it. And it did go 'swimmingly.' We were received with a lively and well-aimed Artillery fire. But the whole distance was covered without halt up to 250 metres from the abatis of the Briz Wood.

(c) *The Fighting-ground* of the 28th Brigade was formed by a wide valley, 2,000 metres across, which stretches from north to south between the ranges of Popowitz and Problus. Its lowest point is about midway between the two. Not counting the cross-road, planted with trees, which connects Popowitz with the Lubno—Nieder-Prim highway, the fighting-ground was quite clear and devoid of cover; while the whole remaining Infantry of the Army of the Elbe found cover for their approach to a distance of 300 metres and 700 metres¹ from the main points of support of the enemy's position. The villages Problus and Prim, which at the time of the 28th Brigade's attack were still in the possession of the enemy, were specially prepared for defence towards the front of the attack. This was not known to the higher leaders beforehand, and until after the Task of the attack had been given

¹ The work of the Prussian General Staff says, on page 369, that the 27th Brigade had marched 1,600 paces over open country, from the wood to the village. The distance amounts to 7-800 metres.

us the cloudy weather made it still impossible, even with a good glass, to make out details. Later on, then, as the fight proceeded we were much surprised when we unexpectedly came upon abatis, some whereof may have been 15 feet high. These encompassed the whole west and north borders of the woods of Bor and Briz; as regards the latter, I mean its northern part. From Probus to Nieder-Prim there runs a range of hills, sloping pretty steeply to the west. But this was not prepared for defence. From the edge of this range up to the wood of Briz the distance then was about 350 metres; and little as that may agree with modern ideas, we must bear well in mind that this surface was as even and clear of cover as a plate. Now, though a low meadow-ground stretches about 800 metres from Probus, and makes, southward, a considerable approach to Nieder-Prim, yet this had but little to do with the question of cover, seeming to receive no attention; at any rate the troops marched away gaily over it. Thus the fighting-ground of the 28th Brigade has to be reckoned as one without cover from view or from fire. But what was possible there in 1866, is for the future impossible.

The adversary had not systematically constructed particular marks for his firing-ranges; at least the only things of the kind I observed were some felled trees, on the Lubno—Nieder-Prim highway. I neither saw nor heard of others.

(d) The Attack

The direction given by General v. Hiller was followed. The 28th Brigade marched on in a courageous mood. Some officers showed noticeably a sort of exuberance of spirits. And I think military history has but few examples of a comparatively great body of troops going into a battle with such 'cheerful' temper as here. But how hard it is under the conditions given to hold fast the point of direction, is shown by the circumstance that despite the careful arrangement the Brigade brought up the left shoulder more and more, towards Nieder-Prim. When General v. Hiller observed this, and simultaneously noticed that the great trees felled on the Lubno—Nieder-Prim highway were the adversary's marks for aiming,

he brought the Brigade more to the left. Nevertheless the skirmishers of 1st/57th still found opportunity to pour a lively fire on the enemy retreating from Nieder-Prim. 1st/57th passed through Nieder-Prim, also F./57th¹ followed it through the place. General v. Hiller showed here a perfectly icy calm, though his little chestnut horse was in a lather from excitement; yet all his words and gentling were unable to quiet the animal. The horse was well-bred, and to watch it closely in all its movements and efforts had a special charm for me. I do not regret having well used this opportunity. For never since have I had such a view of a well-bred horse long struggling with excitement, and never since been able to observe the noble forms showing themselves only in this case. It is no less instructive and even enjoyable than to observe a man under similar conditions.

Though the horse gave his rider uncommon trouble, the General moved no feature. His face wore always the same quiet, kind expression. And he was here laconic as in peace time. 'The church tower to the left, gentlemen, I do beg!' These words and the like he repeated many times. By the small form of the General, Colonel v. d. Osten on his big horse cut a great figure like a knight. He also was calm, and attentive to his regiment and to the adversary. As the Brigade crossed in this order the meadow-ground to the west of Probus-Prim, one heard from the left front a continued Hurrah. It came from the storming of Probus!. A little later, a Cuirassier brigade passed on the left of 2nd/57th. It had attempted an attack on the Saxon Artillery position at Probus-Prim. The attack of this Cavalry is very instructive. But, as generally happens, the most instructive events, if any folly at all attend them, are with great dexterity buried. General v. Kotze had approached under cover, along the wide highway that leads through the Popowitz Wood to Probus; his squadrons moving one behind the other, on a front of a half-*Zug*. Now the taking of Probus might certainly well suggest the idea of falling on the retreating enemy; and the

¹ The noting of the troops in the work of the Austrian General Staff is incorrect. Plan I. in the History of the 16th Regiment, and also Plan I. in the History of the 57th Regiment, give a better representation of the attack.

two Cuirassier regiments had come, under cover, to a point about 700 metres from that enemy. But it was for the Cavalry leader to see and judge for himself, and to choose the right moment. General v. Kotze had seen indeed, but not with Tactical eyes. In a case where, at 700 metres to your front and right flank, you found several batteries that had time during the preceding combat to deliver fire at all ranges, and where you had no means of catching them from cover, it was an obvious mistake, at 700 metres from this Artillery, to come out of the wood, deploy, and attack this large body of Artillery, in front, and uphill.¹ So short was the range, that already the first squadron of the Pomeranian Heavy Cavalry, which was in front, was after about 400 paces forced by the fire it encountered to bend to the right. The rear squadrons, following on, attempted the same feat the first had tried, but in vain. As generally happens with Cavalry in such cases, the speediest horse takes the lead, and the others follow him. But the mass of horsemen were unable to get back safe into the wood. Galloping close along its southern edge they hit the direction of the Popowitz range, and now on the long and unprotected road they were fired upon with effect. Both regiments, mixed together, and rolled up into a big mass, rode back at speed. Withal, the great mob rode in a heap upon the right wing of 11th/28th, and the left wing of the skirmishers of 3rd/57th; 1st/17th was very near meeting a similar fate. The confusion was indescribable. The long-drawn commanders' words, 'Trenches,' informed us that the mass of Cavalry had still come upon obstacles, and at one moment one saw as many legs of men and horses in the air as swords. The flight was like a panic, the troopers behind pressing those in front till the mass had got out of fire; but even then they galloped on. Gradually the troopers who had fallen disengaged themselves again, to hurry singly, or two or more at once, after the others. The mass precipitately retiring made an impression by no means elevating. All the more was hilarity excited when a Cuirassier

¹ It is well known that the same attempt was made, at the Mance Ravine, on the 18th of August, 1870, under very kindred conditions, but with a greater mass.

of the 8th Regiment, as he trotted close past 2nd/57th, called to us, 'At them, lads; they're for making off.' This fine Cavalry, which in this occurrence lost 1 officer, 32 men, and 58 horses, was now wasted for the whole day of battle. And, in the direction taken, how necessary it would have become a moment later! Had General v. Kotze or one of his advisers but shown some Tactical judgment, it was an easy thing, after Probus was taken, to get forward under cover to that village, and thence again under cover to reach Bor when that place was also taken. That would have become the moment to interpose, and presumably the results would have been great. Thus a want of Tactical judgment brings its own punishment. If it is bad in the case of the other arms, Cavalry that has perpetrated blunders like this cannot afterwards at all make them good. It simply leaves the scene of combat never to return. At the instant when the mass rushing back galloped past the Front Line of the 28th Brigade, about one-sixth of the troopers covered the ground, while the rest had lost control of their horses.¹

Shortly after, Major v. Thile, the officer of the General Staff with the 14th Division, came to General v. Hiller. Pointing to the left, he said: 'Probus has just fallen. The Brigade is not needful there any longer. You are now to push through straight between the villages (Probus and Nieder-Prim).' The General listened. A piercing, loud 'Very good' was all his reply. Major v. Thile's face shone with pleasure. He turned his horse and galloped away to the left, calling out some cheering words to the troops. The Brigade having already the direction pretty nearly, found little difficulty in executing the Task. The General made the left wing (2nd/57th) hold back somewhat, and with that the thing was done. The height between Probus and Prim, quitted about this time by the Saxon Artillery, was now occupied by the 12th Saxon Infantry- and 4th Jäger-battalions, which came out from Nieder-Prim. We also noticed two or three columns retiring quickly from Probus, and taking the direction of Bor. The

¹ The work of the Prussian General Staff relates nothing of this. That of the Austrian records the incident (p. 339, III.), but at an incorrect place; and it specifies the moment wrongly (putting it later).

two battalions named received 3rd and 1st/57th with several volleys, which however did little harm.¹ The battery of smooth-bore 12-pounders (Schmelzer) had followed the movement of the 28th Brigade; and, when Captain Schmelzer took in the situation, the battery, with its men sitting in their places, broke forward at the '*Marsch, Marsch.*' It drove through the skirmishers of the 3rd Company of the 57th, unlimbered in front of them, and at a range of 400 paces fired on the two battalions of the enemy with grape. Never since have I observed proceedings so decided, Tactical understanding so complete, and a result more telling in the operation of one battery. That was initiative, an initiative which not only laid low the hostile battalions rank by rank, but also raised the confidence of the attacking Infantry to exuberance. This example may teach us how great is the moral effect produced upon the other arms by an Artillery correctly used. The order of the Battery Commander, '400 paces, front, with grape,' rang over the skirmishers' lines of the 3rd and 1st Companies of the 57th, reaching the Second Line of the Brigade, so that what was taking place regularly fixed the attention of the whole Brigade. Few shots being needed to drive back the adverse Infantry, their retirement was followed at the gallop by Schmelzer's Battery, which, reaching the crest of the height, fired thence with equal effect upon the two much-shaken battalions, and on Bor and the abatis of the Briz Wood. The work of the General Staff says, at page 370, that the manœuvre of this battery was executed against the village of Probus. The text admits, at any rate, no other interpretation. It is possible that the battery before had fired some shots at the above-named Saxon detachments as they withdrew out of Probus. But it is not possible those shots were aimed at Probus itself, which was then already occupied by the 27th Brigade. Also, the battery had not followed the 27th Brigade, but the 28th,² and did not drive in among the

¹ The statement that the 3rd and 1st Companies (p. 42, History of the 57th Regiment) halted and established themselves against these battalions is incorrect. Our skirmishers, rather, continued their advance.

² The work of the General Staff itself declares, high up on p. 368, that the Battery had stood, with the 28th Brigade, in the Second Line of the Division.

skirmishers of the former, but through the 3rd Company of the 57th Regiment.

The Infantry on our side (8rd and 1st Companies of the 57th Regiment) had, up to this point, extended each 2 *Züge* as skirmishers. F./57th, which, like all the rest of the Brigade except 1st/57th, executed its movement in column by the centre, had extended one *Zug* each from the 9th and 12th Companies. Everything else was still in close order. The 'literary' phrasing of the work of the Prussian General Staff is not quite comprehensible psychologically where it says, at the bottom of page 369, that the enemy's fire was not in a condition 'to accelerate the movement of our men.' And we may consider untenable the statement made on page 371, 'that the circumstance of the 28th Brigade having in its advance reached the dead angle had lessened its losses (in face of the hostile Artillery).' During the whole of the fight an extraordinary attention was dominant. This was true of all, from the whole Division down to the last Musketeer. Also the decided demeanour of the higher leaders gave the movement of the whole body an effect of unalterable stability and precision. But the Saxon Artillery fire did operate to real purpose in hastening our movement. And what it left undone, in that matter, was made good by guidance of the Division Commander. Before the Brigade reached the crest of the high ground south of Probus, Major v. Thile had ridden down the front and urged a greater speed in the movement. Besides this, it was about 3 o'clock known in the Army of the Elbe what was at stake. Probus had just fallen at this hour. The prize the day might win could only be found in the quickest possible interposition of the remaining forces. And for this the 28th Brigade was nearest at hand. For Probus formed the Strategic point of the enemy's left wing. Further, I remark that there is not and cannot be a dead angle between the heights of Probus and Popowitz. The general surface of the valley is flat, and only in the last third does it get steep. But when we reached that part, the whole of the Saxon Artillery had prudently vacated its position. From thenceforward, up to the taking of the Briz Wood, we received no more Artillery fire at all.

The fact that the 28th Brigade suffered smaller losses than the 27th must be explained by other circumstances.

Now at once comes to discussion the difference of time. From the time the bridge at Nechanitz was obstructed, the two brigades were entirely separated and parted from one another.¹ The 27th Brigade had at that time at once gone forward without waiting for the arrival of the 28th.² Thus it came that the 27th Brigade, to whose fighting-ground the Popowitz Wood afforded far more cover than the 28th had in theirs, found Probus and the height south of it strongly occupied, and had to bear by itself the fire of that numerous Artillery and Infantry. When later the 28th Brigade crossed the height of Popowitz, one noticed distinctly how the adversary's fire quitted the 27th for the 28th Brigade. But up to that time the former had suffered seriously. Now, as Probus had fallen earlier than the height south of it, and the Saxons had, before the 28th Brigade came up, relinquished the Artillery position established on the height, the 28th in this way also had less to suffer, and thus too its losses were smaller. Besides, most of the shot did not burst—they were Prussian percussion shell—so their effect was like that of round shot. Further, the 28th Brigade accelerated its movement as much as possible, so as to leave behind it as fast as it could the zone of the annoying Artillery fire.

Schmelzer's Battery, which in the meantime was in conflict on the height south of Probus, had been briskly followed by our skirmishers. The formation was just that before described, so that the 2nd Company of the 57th Regiment was still in close order, in rear of the centre of the skirmishers' line.

A remarkable occurrence may be here set down. When the fire of the 3rd and 1st Companies of the 57th, along with Schmelzer's Battery, had attained such good results against the two Saxon battalions, Lieutenant-Colonel v. Schöning, turning round, noticed that the colour of the 1st/57th was with the 2nd Company. He despatched his adjutant, Premier-

¹ Compare p. 44.

² In all the descriptions use is made of the maps that show the Battle of Königgrätz in the works of the Austrian and Prussian General Staffs.

Lieutenant Boecker, to this company, with the order to bring the colour at once to F./57th, which was in close order. In consequence of this the colour-party of 1st/57th was seen at this exciting moment, all alone, with its colour, striving to reach F./57th. Still the distance to be covered was far from small, and the ground was saturated; so that the party did not reach F./57th till the halt of the Front Line, and had in fact been for some 20 minutes unprotected. As Lieutenant-Colonel v. Schöning's adjutant returned to him, the former said, 'That is indeed an infernal fire.' Premier-Lieutenant Boecker replied, 'But a good thing every ball does not hit,' and had hardly said the last word when he fell from his horse dead. (From a communication of Colonel v. Schöning, who was wounded at Vionville and died thereafter.) Lieutenant-Colonel v. Schöning's horse had been already several times wounded. Soon after the incident mentioned he received a grazing shot on the left side of his neck, but, with his heroic nature, he remained in the saddle. The blood trickled down on to his tunic. V. Schöning took out his handkerchief, bound it over the wound, and continued to lead his Battalion till the termination of the battle.

The crest of the height which Schmelzer's Battery and our skirmishers had been firing upon was covered with an uncommonly large number of dead and wounded. The wounded uttered many heartrending moans, and we, moving in column, could not, even with the greatest care, step over them always so mindfully as we wished, especially as at this moment we had to wheel to the left to gain the direction of Bor and the Briz Wood.¹ Our surprise was general at finding wounded and dead Saxons only; and Colonel v. d. Osten remarked: 'Ah, they are Saxons! Good morning!' Soon afterwards a wounded Saxon officer raised himself out of the medley, and called to General v. Hiller as he advanced: 'Back, you do not come through here!' The guidance of the Brigade and of the Regiments, at this moment, deserves the highest recognition. The Lines had not lost either distance or dressing. The Brigade had marched

¹ The History of the 57th Regiment speaks here of a 3rd Saxon battalion that had come out of Nieder-Prim. I noticed nothing of it.

1,500 metres over open country through fields of tall rye, and had already suffered sensible loss. But so steady was its behaviour that, upon reaching the Probus plateau, it was able to carry out its wheel to the left, despite a constant hostile fire, without any preliminary halt. The march half-right and the wheel to the left had exposed the front of 1st/17th. So General v. Hiller in order to cover the new front brought forward from this battalion two companies, which joined 3rd/57th to the north. Meanwhile General v. Hiller, with all his outward modesty, preserved the calm of a hero. The wheel made it necessary also to prolong the skirmishing-line towards the south-east. Two *Züge* of the 2nd Company of the 57th Regiment were used for this.¹ These went forward at the '*Marsch, Marsch*' to align themselves with the 3rd and 1st. Soon after the whole of the Front Line halted.² We now at last perceived that we were in front of a strongly fortified position, from which an uninterrupted skirmishers' fire was maintained. Notwithstanding the short distance, we did not make out the strength of the defenders. So there was no choice but to fire on the high abatis at a venture.

General v. Hiller apprehended that every minute of time wasted on this perfectly even surface, without any cover at all, must be damaging. He determined to take the wood as quickly as possible. To this end he caused the Second and Third Lines to close up to the First. But when the Second had nearly reached the First, and they were on the point of rushing forward in combined strength, there rang out from all sides the signal, 'Cavalry.' The situation was critical. We were about 200 metres in front of abatis occupied in strength (1 brigade of 5 battalions, and the 1st Jäger-battalion in Bor); and the ground was without cover. The skirmishers collected into groups. The battalions formed square. We waited expectant for half a minute, for a minute; the Cavalry—came not! A Saxon squadron, having lost its way in the Briz Wood, had suddenly appeared at this edge of it.

¹ About 300 metres in front of the abatis.

² The music had stopped only shortly before. (Page 48.)

Noticing its mistake, and being fired at by 1st/57th, it had wheeled about and trotted back. That was the whole thing.

The insignificant incident had brought the movement to a standstill. This shows what harm may be caused by signals, especially if given before the state of affairs is made clear. If the bugler concerned had not given the signal, which in accordance with regulations was of course repeated right and left, we should, without great losses, have taken the abatis and made a large number of prisoners. On the battlefield all bugle sounds, except the 'General advance,' must be most strictly prevented. Forbidden they are, but at the same time not prevented. (Similar harm was shortly before caused by sounding the 'General assembly' after Probus was taken. See, for details thereon, the History of the 16th, p. 280.)

While the skirmishers' *Zug* of 2nd/57th formed knots it received a very warm frontal and flanking fire. And here it was that its commander, Lieutenant v. Stojentin, was mortally wounded. He gave over his command to me in the words: 'I am done for; manage to get forward; here everyone will be shot down! Good-bye!' He was a courageous officer. I never saw him again.

A glance at the fighting-line becomes here all the more necessary, as we cannot obtain a satisfactory view of the situation from the work either of the Prussian or Austrian General Staff, or from the Histories of the 17th and 57th Regiments, whether we consult the text or the noting of the troops. Indeed, in the Histories of those Regiments the way the troops are noted is apt to obscure the description itself. When all three Lines had mounted the plateau between Probus and Nieder-Prim, it was not possible to give a fresh direction to the long line of skirmishers of 3rd and 1st/57th. These still faced therefore straight forward, and came on that part of the wood's edge which lies just midway between the two roads that run about parallel with each other and lead from Probus and Nieder-Prim to the Briz Wood. Both companies halted about 200 metres from the abatis. 2nd/57th was taken out to the right (towards the east), and at the same time made to wheel to the left. In this move-

ment towards the right, F./57th remained on the extreme right wing, so that it with the skirmishers of the 9th Company touched the road Nieder-Prim—Briz Wood ; and also halted abreast of the Front Line. Ist/17th had, as well as 3rd and 1st/57th, kept to the direction straight forward. Now since this battalion was thus at a materially shorter distance from the wood, it came upon very obstinate resistance almost simultaneously with the two companies just named of the 57th, and indeed from northward of 3rd/57th to the road Problus—Briz Wood. The battalion therefore reinforced its skirmishers, which, at about 200 metres from the abatis, stood from right to left : IInd *Zug* of skirmishers, Ist *Zug* of skirmishers, 4th *Zug*, 5th *Zug*, IVth and IIIrd *Zug* of skirmishers. IInd/17th had followed in rear of 2nd/57th, and was, during the incident related above, in closed square about 50 paces to the left rear of 2nd/57th. Now, since Ist/57th, Ist/17th and F./57th had deployed skirmishers in strength (1st/57th all three *Züge* ; 3rd/57th and 2nd/57th each two ; IInd/17th two ; F./57th four *Züge*), the line of skirmishers of the Brigade stretched exactly from the road Problus—Briz Wood to the road Nieder-Prim—Briz Wood, encompassing the wood in a semicircular form. (See Sketch I.)

After the mistake caused by the signal had been cleared up, and the skirmishers had not, or hardly, taken again their former position, General v. Hiller rode back to IInd/17th. He felt the gravity of this crisis, and knew the difficulty of bringing forward a firing-line that is lying down. He gave directions to Major v. Bieberstein 'to march up at the double, and pass through the skirmishing-line, so as to give a fresh impulse to the whole movement.' General v. Hiller moved along with the battalion, upon its left wing ; and as he reached the line of skirmishers, he dashed forward, holding up his sword, and cried, 'Skirmishers too !' 'The whole line,' continues the General, 'rose and rushed resolutely on, while the drums beat. There was no end to the shouting of Hurrah, and the assault ensued almost simultaneously at all points.' Close on my left IInd/17th climbed over the abatis, but naturally the battalion in close formation was thus dis-

ordered, and remained somewhat behind the more nimble skirmishers further northward.

It is remarkable that histories upon histories have been written about this occurrence without the idea striking one of their writers to ascertain who it was that gave the impulse to this assault. If the regiments had done as I have, and addressed themselves to that person to whom, on account of this fine event, they owe so much, their regimental Histories must have contained the story I have related in place of the favourite phrases that are unfortunately only too empty of meaning. In that case, the regiments would have had, instead of the 'eminent deeds,' one eminent deed, which is of more value than the dozens among which one seeks in vain for a meaning. My heart felt a need to raise to the hero of Bor the merited memorial, and to make good the omission of the troops who in time past won so fine a victory under him. From the point of view of Tactics, it was my duty to thoroughly investigate this example, which may, *mutatis mutandis*, be useful still to-day in some situations of conflict. For I felt I had to ever preach again and again the truth I believe in, that those troops alone conquer who are led. And I am heartily grateful to the honoured General for having, however reluctantly, instructed me in the inner consistency of this matter.

The most obstinate resistance was that met with by Ist/17th and Ist/57th; the smallest, by F./57th. Against Ist/17th, indeed, there came detachments in close order, which had to be overcome in close conflict. Captain v. Ledebur, who commanded the 4th Company, was here shot at about 10 paces. The extended *Züge* of Ist/17th and Ist/57th followed the enemy generally in the direction of Bor, which farmyard was taken later by 2nd/17th.

Here the wood was in two portions. On the further edge of the more northerly portion, 3rd and 4th/17th encountered 1 battalion under Sigismund, which was in a short time quite dispersed by independent fire at about 50 paces, leaving behind several officers and about 150 prisoners. Later on IIInd/17th and Ist/17th met near Bor, the combat just here being then over. By General v. Hiller's order, both battalions

halted at that place. From here some single *Züge* had still an opportunity of firing upon Coudenhove's Cavalry Division, at about 6-700 paces. Towards half-past 5 o'clock the King came on horseback from the north, and was cheered by the men of the 3rd, 6th, and 7th Companies of the 17th. The Commander-in-Chief stopped his horse for a time, and addressed some gracious words to the troops. All three companies of 1st/57th followed also in this direction the slowly retreating enemy. At the spot where I was the enemy did not quit the abatis until we had reached it. On the far side a man of the 1st Battalion of the 1st Saxon Infantry Brigade fell into my hands. He said imploringly: 'Oh, do not hurt me. I am only a carpenter.' It seems specially worthy of note that the rank and file with their field equipment had accomplished the long onset of about 200 metres without pause. The consequence of that was that the still additional exertion of climbing over the abatis caused a great exhaustion, which forbade any immediate following up of the enemy. The difficulty of this was also in itself much increased in places by thick underwood. Connection being relaxed by these different circumstances, some commanders caused their men to be assembled on the road leading from Bor southward through the wood. This was done in the case of IInd/17th and 2nd/57th. My servant, a small Westphalian, came to me at the assembly of the company. Before the storming of the abatis he had received a shot through the cheeks. As it happened quite close to me, I told him he should go back. But the brave little fellow had other views. He wanted still to be at the storming of the abatis; and he kept his word! He only now went to look for the dressing-station. His name was Werthmann. On my application he received the Military Decoration. But of this fine incident again the regimental History contains nothing. This delay explains why IInd/17th and 2nd/57th were rather later in reaching the further edge of the wood. The march through the wood, in which the 57th Regiment made about 140 prisoners, taught us better the effect of our own guns, which, as we know, the Saxons used. For, after their Infantry had quitted the wood, the Saxon Artillery poured into it a heavy

fire of shell. And I own that this din and echo, the falling splinters of trees and of iron, remain with me the most forcible remembrance of that day. Whoever has endured Artillery fire can conceive that the French in 1870-71 showed a certain nervousness when opposed to it. Till then there was nothing more uncanny than a bursting percussion shell, and the Saxon Artillery were good shots. So, as soon as the men were assembled, the thing went on; however, 2nd/57th had temporarily lost connection with the other units of the Regiment. Issuing from the wood at its northern edge, 2nd/57th met with General v. Hiller, Colonel v. d. Osten, Colonel v. Kottwitz (17th Regiment), and Lieutenant-Colonel v. Schöning, the last named having about his neck a handkerchief through which the blood had trickled. They had ridden round the wood on account of the abatis. 2nd/57th went on from there in a northerly direction, and rested its right wing on the northern edge of the northern portion of the Bor Wood, while the greatest part of the company spread out westwards over open country, with its front to the north. At this moment the signal, 'Cavalry,' again sounded throughout the line. The officers just mentioned sought shelter in the wood, and 2nd/57th ran back to the same spot. But, no Cavalry being observable from here, 2nd/57th resumed its former post, whence it was spectator of the grand attack of Coudenhove's Cavalry Division, and the charge of the 1st Guard Dragoons. I do not think that one man of the company delivered his fire, and in fact the view of these noble lines of horsemen was so overpowering that the men quite forgot their weapons in their wonder and close attention, although, the distance being about 700 paces, we might have expected to fire with effect. I their leader was no better! A mob of riderless horses soon galloped panting away in all directions. Several passed through our line of skirmishers, where some were caught singly; so that the officers, many of whose horses had been shot, were able to mount themselves on those that fell into our hands. Captain v. Stwolinski (1st/57th) did so, and Premier-Lieutenant v. Bernewitz (2nd/57th), and so on. (The horse had suffered several bullet-wounds). Hereupon General v. Hiller gave an order to

2nd/57th that it must turn back to the northern edge of the Briz Wood and occupy it for the present. Meantime we heard a continuous Hurrah from Bor; this was the salute given by the 17th, who stood there, to their Commander-in-Chief (p. 62). But in this way I unfortunately missed the pleasure of that scene, and only heard of it in the evening when the Brigade assembled.¹

I have still to mention a strange incident. Shortly before the advance to storm the abatis we noticed along the whole front of that part which was opposite to us a beckoning with handkerchiefs, which gave a general impression that the adversary desired to yield. Of yielding, however, we remarked no trace, but the Saxons kept up a vigorous skirmishers' fire upon us to the last moment. The beckoning with handkerchiefs was observed by many, and for all the pains I have taken to ascertain its cause I have still been unable to do so.

It seems as if the Saxons had for withdrawing their principal forces made adroit use of the interruption that our movement suffered through forming square before the assault. Otherwise more prisoners would, in the circumstances that prevailed, probably have fallen into our hands. As to our fire, a proof that it was more effective than we had imagined was given by the dead and wounded that lay behind the abatis. This was specially so opposite to 2nd/57th, which is explicable by the fact that 1st/57th had here enfiladed the adversary on the flank. A close investigation which I undertook next morning certainly showed me that most of the shots had struck much too high; for the branches of the abatis and the trees on the edge of the wood showed at the height of 15-20 feet an extraordinary number of Infantry bullets. In the wood of Briz itself the Infantry of both sides fired but little, yet some isolated shots were heard in it even on the next morning, which was attributable to the discharge of the weapons found that were loaded.

Now, as regards the combat about the abatis, this was very

¹ The event was as I have related. The narration on p. 45 of the History of the 57th Regiment is incorrect. It is remarkable that there also nothing is said of the King, whom, however, 8rd/57th must have seen.

obstinate, but I nowhere saw a bayonet conflict. There were various Saxon skirmishers still firing at the time I made my way through the abatis; and my company leader, Premier-Lieutenant v. Bernewitz, who, accompanying the 3rd *Zug* of 2nd/57th in close order, valorously remained mounted as far as the abatis, was there for a moment the target for a sharp fire, so that his horse received many shots at the closest range. At last he dismounted, but, as he said, 'only because with the beast he could not get over the abatis.' The scene was not without a certain comicality, particularly as upon his call for a 'man to hold the horse' quite a number of people rushed up to do this duty. The list of losses specifies a Premier-Lieutenant of the Landwehr, Philippi, 2nd/57th (4th *Zug*), as wounded in the foot by a bayonet thrust. Now Philippi was not found at the abatis. But Ensign Schreiber found him deep in the wood, and helped Philippi on to a captured horse, and in this way, after the termination of the battle, he brought the not exactly military figure to the dressing-station. The picture was peculiar: the small Ensign with a long sword at his side, in high jack-boots, holding his sword with the left hand to prevent it swinging between his legs, and with his right carefully leading a big Austrian horse. On this sat Philippi, his knapsack on his back, holding fast to the saddle with both hands, his legs drawn high up, his back round. Behind the horse, as 'escort,' came a body of about 20 Austrian and Saxon prisoners of all arms, in very strange dresses, and some of them wounded. This train of pilgrims produced a peal of laughter! So closely attended are serious events by comic scenes.

According to what I was told by Lieutenant v. Redern of the F./16th, who had afterwards met Philippi, the 'bayonet thrust' arose from a personal clumsiness. But as happens in such things, Philippi became an 'interesting' personality, and often as he has told the story, I have as little believed it. Besides, probably in consequence of my narration in the first edition, the 'bayonet thrust' in the History of the 57th Regiment has been transformed into a 'contusion' of the foot.

The report, in the work of the Saxon General Staff, says that the first Jäger-battalion distinguished itself much and

held the abatis with much firmness, though threatened almost in rear. Against the 1st Jäger-battalion and in rear of it was the advance of the 3rd Company of the 57th Regiment. The Jäger-battalion had occupied a portion of wood situated north of the Briz Wood, and it is extremely likely that its retirement had become specially difficult. The Battalion also lost most of the prisoners. But even there combat with the bayonet was not reached, although there was an obstinate fire combat against Ist/17th at 50 paces and less.

The Tactical guidance must be designated as excellent. Blame might be attached to the proceeding of the 28th Brigade when in the situation I have described it formed squares at all; and it has been remarked to me myself that General v. Hiller, instead of heeding the signal, ought at once to have passed to the storming of the abatis. On this it should be said that the signal having been once given, the General was no longer able to hinder the troops from following it. Besides, it has never been established from whom the signal proceeded.¹

Further, owing to cover for their approach, it was quite possible that hostile Cavalry might appear.

The work of the Prussian General Staff relates (page 394) that 'the further pursuit was committed to Captain Streccius with the 2nd Company of the 17th Regiment, the 2nd Company of the 57th Regiment, and some assembled *Züge* of skirmishers.' The reader may decide whether and how far the word pursuit can be applied to that following up which Captain Streccius carried (up to the north-easterly edge of the Bor Wood patches). Thus much is certain, that the 2nd Company of the 57th Regiment was never for a moment under Captain Streccius, whom on the day of the battle I did not see at all, and that besides, among the assembled *Züge* of skirmishers, only those of the 17th can have been included. For the 3rd, 1st, and 2nd Companies of the 57th Regiment, extended and pressing on in that direction, did not pass out of the compass of the Regiment; F./57th was too far removed from the 17th Regiment; IInd/17th only reached Bor when Ist/17th had taken it, and no one got further afield!

¹ This is also confirmed in a written communication to the Author from General v. Hiller of the 10th of February, 1890.

The Briz Wood was now occupied in the following way (at five o'clock):¹ north side and north-east corner with Bor, 3rd/57th, 1st/57th; east side, F./57th; north side, 2nd/57th; Bor and the two patches of wood there, 1st/17th, IIInd/17th. Towards half-past 6 o'clock General v. Hiller brought the 28th Brigade on to the plateau west of the Briz Wood, where the whole Brigade lay during the night. The 27th Brigade bivouacked in and near Problus.

Hiller's Brigade had bought its success with the loss of 10 officers and 190 men. There fell into its hands 12 officers and 800 men as prisoners.

Of the losses, 8 officers and 99 men belonged to the 8 companies of the 57th Regiment, 2 officers and 91 men to the 8 companies of the 17th Regiment. The 3 companies of 1st/57th (in the Front Line) had the heaviest share in them, namely, 6 officers and 64 men; the 2nd Company lost 2 officers and 20 men.

It would appear from the story of this attack given on page 48 of the History of the 57th Regiment as if General v. Hiller had been encouraged to make it by the King's aide-de-camp, Lieutenant-Colonel v. Stiehle, and that the Lieutenant-Colonel had arrived before the signal, 'Cavalry.' Both of these statements are erroneous, according to General v. Hiller's written account, which lies before me. And were they not erroneous the General's merit as leader and as hero would thereby be lowered. As a matter of fact, Lieutenant-Colonel v. Stiehle did not arrive until after General v. Hiller had brought forward Bieberstein's Battalion (IIInd/17th), and the Lieutenant-Colonel 'did not strengthen the General in his purpose to attack'; but he delivered to him the categorical Order not to advance further, when he looked over General v. Hiller's arrangements for the occupation of Bor and the Briz Wood! When General v. Hiller had directed the occupation of the edge of the Bor Wood, the troops stationed there were fired on from a south-easterly direction. General v. Hiller

¹ In reference to time, I note that according to my observations Problus may have fallen somewhere about a quarter to 3 o'clock, and the farmyard of Bor and the Briz Wood may have been taken somewhere about half-past 3 o'clock.

made out that the people firing were Prussians by their head-dresses, and therefore sent Lieutenant Hesse, the adjutant of 1st/17th, to them to explain their mistake. When he reached them, it appeared that the 2nd Battalion of the 93rd under Major v. Bieberstein had taken the Prussians near Bor for the enemy. Thank God, greater harm was thus prevented. It was only after these incidents that Lieutenant-Colonel v. Stiehle found General v. Hiller. Soon after, it being already dark, orders arrived from the 14th Division to move the Brigade away to Probus. But, since the rank and file were very tired, General v. Hiller sent the request to Count Münster, by his aide-de-camp, Lieutenant Arndt, for leave to stay in the position named, which Lieutenant-General Count Münster agreed to.

Outside the hostile fire the Brigade had been drawn up in two Lines; and after it began its work three were formed. It remained in this formation up to the first halt (250 metres from the abatis). The regiments stood one behind another. Their march was across country without cover. And during the movement a considerable inclination to a flank, and a wheel to the left, took place. Within the range of effective Infantry fire (200–250 metres) the Brigade changed from extended to close order (forming square); and then resumed the extended fighting formation; it delivered a simultaneous assault with all its strength on the ranks of the adversary, climbed over high abatis; followed the retiring troops on foot through underwood thick in some places; and, shortly after overcoming the adversary, it stood again with its greater portions assembled and in order, as if it had completed a bloodless exercise in peace time. It traversed more than 2,000 metres, column by the centre with skirmishers in front being the general formation used. Only 1st/57th, whose talented commander was wounded,¹ as Colonel at the head of

¹ One of my readers has, *à propos* of this, made the following communication to me:—Colonel v. Schöning was wounded, severely but not mortally, by a rifle-bullet in the upper part of the right arm. He was to be carried off by 4 Fusiliers, supported on their rifles; and he agreed to this. But as the French were shortly after marching up to make a counter-attack, Colonel v. Schöning ordered them to let him lie there and go back without him. 'You shall not be shot dead

the 11th Regiment on the 16th of August, 1870, at Rezonville, in one of the many bloody attacks on the height 970, was during the combat entirely extended, with the exception of 2 *Züge*. The skirmishers (3rd and 1st/57th) took up the firing at about 350 metres, and shot as they went, a thing that was seen later on, and with good result. Despite their extended order, they suffered the greatest losses, for which the signal 'Cavalry' may have some blame. The small losses of the strong columns are in the case of such country as that explained by the fact that the Saxon weapon did not carry to the Second and Third Lines. All officers, even the company commanders and leaders, remained mounted throughout the whole fight.

The attack deserves to be called the model of brigade leading. And General v. Herwarth himself, who had followed it with close attention, used to speak of it with predilection up to his death. General v. Falckenstein also said in Hanover to General v. Hiller, that General v. Herwarth had told him he owed his successes to the 14th Division. And I can asseverate that General v. Falckenstein, in Hanover, also addressed in this sense the Regiments (16th and 57th) which moved out of the district under his command to form part of the Xth Army Corps.

The night was very cold on the plateau of Probus, and I have seldom been so chilled as I was there. But at any rate I could allay my hunger. Till we reached that place the only sustenance I had had during the 3rd of July consisted in a small hard piece of bread that I had carried in my knapsack ever since Münchengrätz. Near Bor two Musketeers of the 49th Regiment had reported themselves to me. I put them in the ranks of my *Zug*, and they then remained with me till next morning. Meantime my wounded servant had been taken to Probus, so that I was in want of the barest necessities.

on my account!' added he. When our side pressed forward later on, the 11th again reached the place where Colonel v. Schöning lay immovable upon his back, his face turned towards the enemy. 'Never again,' says my informant, H. Heinemann from Altona, 'have I had such opportunity as this to admire a hero. In spite of his pains he called out to us, "Children, do we conquer?" "Yes, Colonel." "Now then, let us cry a *Hoch* to our King!" And we joined three times in the *Hoch* he vigorously gave. I have never seen him since.'

As night came down I fell asleep, surrounded by my men, who, like a swarm of buzzing bees, were, the most part of them, in search of food. But their labours were in vain. Darkness made 'exploring expeditions' difficult; so the men had to content themselves by drinking some coffee without any etceteras. I was awakened from my first refreshing sleep by the two doughty Pomeranians; one had a steaming cooking-vessel in his hand, the other raised me up. 'Ensign,' said the first, 'here is something to eat!' I was touched by the men's kind-heartedness, and gratefully accepted their offer, which consisted in a rice soup with bacon. Well as I remember these good Pomeranians, so fixedly does this night scene stand before my mind. Between numerous small cooking-fires the men were slumbering in close heaps to keep each other warm. Others moved among them like shadows. Out of a far distance there shone masses of flickering fire. The air was heavy with the well-known smell of burning fir. In the wood some shots were heard now and then. Here and there I heard moans from the wounded. I stood up and walked some distance to northward. But the irregular way the men lay at rest obliged me to stop my walk, and I lay down again. Not till 6 o'clock, when everyone was already upon his feet, did I awake. The commanders now took measures to restore order and regularity. Part of the men looked after water and food; another part were employed to bury those that had fallen, a duty which I had to superintend. Towards 10 o'clock began the cooking of what had in the meantime been brought in by collecting and by the Commissariat waggons. It was miserably little! Somewhere about 12 o'clock the officers and details of men from the regiments of the 14th Division went to Probus, to inter the fallen officers and others in the churchyard of the place. The proceedings were of a thrilling solemnity. All the higher officers stood round the graves. The several corps of officers took their places. The clergymen of the two confessions gave a short burial address. Then each person moved up to render to the fallen the last tribute of this earth; and we quitted the village, which now still gave the impression of entire desolation. When we reached our camping-ground on the plateau

the joyful news spread abroad that the baggage train had arrived with bread. And men were soon sent off to draw provisions. But the disappointment was great. The bread was so mouldy that it had to be buried at once. Rice, split peas, coffee and salt, could only be issued in insufficient quantities. But in such a state of things fate generally opens a wide field for humour. And in our case, too, there was no lack of lively jokes about the 'Famine Campaign,' as it was now justly called.

In separate groups we talked over the results of the battle. It was clear to everyone that a decided victory had been won. But, equally, every officer who reflected further had an impression that pursuit had been entirely omitted. I remember Lieutenant Lancelle saying already at that time, in a very dissatisfied way, 'Then what have we got? Only the battle-field!' Towards 2 o'clock I went alone through the Briz Wood, to see what the retreat of the adversary had been like. What I saw mocks all description. The bodies of men and horses lay literally towering in heaps. And the picture was the same to the limit of my sight. I started back again. The sun shone kindly over the wide valley of the Elbe, otherwise so lovely! I had hardly reached the Battalion when we had to get ready for marching away. The line of march passed along the western edge of the Briz Wood, so that all the ground over which the 15th Division had fought was easily to be seen. In the clearings between Steinfeld and Stezirek the bodies lay so thickly that I observed nothing worse at Mars la Tour in the French war. One trait gave some appearance of the victors having wished to make palpable the magnitude of their enemies' defeat, for the firearms were stuck into the ground with the bayonets, and, the heavy butt-ends being uppermost, the weapons stood aslant, so that these clearings gave in the true sense of the word the impression of broad fields of hops. I saw only isolated Prussians. The distance between them and the Saxons and the Austrians of the VIIIth Corps amounted on the average to about 150-200 paces. The column on the march, which had moved off to the singing of the rank and file, was quite silenced at view of this. The commanding officers seemed also to be struck by the scene,

for the battalions halted a short time, as if to offer everybody an opportunity of seeing what losses had resulted from the adversary's repeated offensive against the 15th Division. Towards half-past 6 o'clock we reached the village of Libcan, prettily situated on the slope of a hill. The whole Elbe Valley as far as Königgrätz spread itself out picturesquely at our feet in the sunset light. But the desire of satisfying our hunger prevented any other thoughts from gaining ground. Libcan possessed at that time great cherry orchards, and it was not long before the men were sitting in the magnificent cherry trees, climbing to the topmost boughs, so that next morning the trees were bare. There were large fields of ridged potatoes. But these were only as thick as one's finger. Not till we reached Kollin did we obtain bread again !

II. THE ATTACK OF THE 19TH HALF-DIVISION (38TH INFANTRY BRIGADE) ON THE HEIGHTS OF BRUVILLE, IN THE BATTLE OF VIONVILLE, ON THE 16TH OF AUGUST, 1870

(a) *March to the Field of Action*

THE 38th Infantry Brigade, 16th and 57th Regiments, with the 2nd Light and 2nd Heavy Batteries, and the 2nd and 3rd Companies of Pioneers of the Xth Army Corps, had decamped from Thiaucourt under General v. Schwartzkoppen on the 16th of August at half-past 5 o'clock in the morning. According to H. v. Rohr, History of the 1st Regiment of Dragoons of the Guard, the Brigade of Dragoons of the Guard, with the Mounted Battery (Planitz), had been moving quickly in advance since half-past 4 o'clock. At 10 o'clock this detachment reached St. Hilaire, the general objective point for the march of the troops.¹ Its commander, Count Brandenburg II., hearing Artillery fire from the east, resolved, with the consent of General v. Schwartzkoppen, to ride to the thunder of the guns.² To do so there were for him only the 1st Regiment of Dragoons of the Guard and the Mounted Battery to begin with.

Lieutenant-General v. Schwartzkoppen might have connected that Artillery fire with the proceedings of a reconnoitring force. For, prior to marching off from Thiaucourt, he knew that one was despatched, under Lieutenant-Colonel v. Caprivi, Chief of the General Staff of the Xth Army Corps, with a view to ascertain the whereabouts of the masses of the enemy which had been observed on the 15th of August near Vionville. The General in person was with the 19th

¹ Work of the General Staff, p. 602, I. The Cavalry, according to this, had employed $5\frac{1}{2}$ hours for 22 kilometres.

² Text of the work of the General Staff.

Half-Division,¹ as appears from v. Rohr's account and that of the 57th Regiment (p. 77).

It was an oppressively hot August day. Nevertheless, the Infantry marched so briskly that shortly after 11 o'clock they arrived at St. Hilaire. At Woël a halt of 10 minutes had been made, but no other anywhere.²

¹ History of the 16th Regiment, p. 266.

² The work of the General Staff postpones the marching of the 19th Half-Division away from Thiaucourt, p. 594, I., to 7 o'clock. Now the distance between Thiaucourt and Woël is 17 kilometres. Since the best Infantry cannot keep up a speed of more than 1 kilometre in 12 minutes, the march to Woël, including a rest of 10 minutes, required 3 hours 34 minutes. The work of the General Staff says also that General v. Voigts-Rhetz had ridden out of Woël to the battlefield at 10 o'clock. As he was in rear of the Half-Division, this force must at 10 o'clock have marched through Woël; otherwise we should necessarily have seen General v. Voigts-Rhetz. This already furnishes the proof that the 19th Half-Division must have quitted Thiaucourt before 7 o'clock. General v. Schwartzkoppen was not till later acquainted with the fact that General v. Voigts-Rhetz had ridden away in the direction the fire of guns was heard.

With this let us compare the statements of the 1st Regiment of Dragoons of the Guard and the 16th and 57th Infantry Regiments. As to the former, we read in the History of the Regiment by H. v. Rohr, p. 124: 'Thus the Brigade (Brandenburg II.) took its departure at half-past 4 o'clock, and marched by St. Benoit en Woëvre and Woël to St. Hilaire. The 5th Squadron of the 2nd Regiment of Dragoons of the Guard (v. Trotha) formed the advanced guard. In St. Hilaire, when the Brigade Commander was on the point of throwing out outposts, the fire of guns became audible from Metz. Since this increased every minute, Count Brandenburg marched in the direction the thunder of guns was heard. With him were our Regiment, Planitz' Battery, and the 4th Squadron of the 2nd Regiment of Dragoons of the Guard (v. Hindenburg), Count Finckenstein, who commanded this Regiment, accompanying the Squadron. Count Brandenburg reported this to General v. Schwartzkoppen, with the remark that he had left at the disposal of the Division Trotha's Squadron in the position indicated for the outposts.'

It does not seem probable that the Cavalry took its departure 2½ hours before the Infantry. But, beyond this, there is a not unsubstantial difference in the statements between him and the work of the General Staff in regard to the circumstances under which Count Brandenburg II. moved away to the battlefield (compare p. 602 of the work of the General Staff, I.).

About this the 16th Regiment says in its History, p. 266: 'The detachment (the 19th Half-Division, Author's note) had left Thiaucourt at 6 o'clock in the morning, marching on St. Hilaire, with the Fusilier Battalion of the 16th Regiment in the advanced guard, and arrived there towards 12 o'clock.'

In the History of the 57th Regiment (of v. Schimmelmänn, I.), published in the year 1888, at p. 77 the time of marching off is specified as 6 o'clock in the morning; the arrival at St. Hilaire, 12 o'clock noon.

The distance from Thiaucourt to St. Hilaire amounts, as I reckon it, to 22 kilometres at least; as the 16th Regiment does, to 20 (p. 266 of its History).¹

We supposed the adversary to be marching away to Verdun, and, indeed, partly upon the road on which we ourselves now were. The consequence of this opinion was that during the march to St. Hilaire a certain tension prevailed in the minds of the Staffs. The maps were industriously used. But when we reached the line of the enemy's retreat, great was our surprise to observe nothing of the enemy himself. The 5 Battalions, both the Batteries, and the two Pioneer Companies moved now to an encampment south-east of St. Hilaire. IInd/57th and Trotha's Squadron of the 2nd Regiment of Dragoons of the Guard furnished the outposts for its security. While this was being done a continuous bell-ringing from the neighbouring churches signified the arrival of the enemy. There was a clear view as far as the Meuse chain of hills. There was not a breath of wind. Near St. Benoit en Woëvre my attention had been drawn by other persons to cannon-shots, which in spite of the greatest attention I was myself unable to hear; and it was only while we were in camp at Woël that I could perceive them. In my opinion the sound came from the right rear. According to this we must have been in rear of the enemy, but no one was really ready to believe we were. We were soon to be made sure on the point.

¹ The Infantry of the 19th Division marched, since the 9th of August, without their field equipment. The knapsacks had been bestowed at the railway station at St. Ingbert, under an adjutant for each of its regiments. This task for those of the 57th Regiment fell to me. The men carried their cooking-utensils attached to the rolled great-coats; the ammunition from the knapsacks being carried in the haversacks. By the calculation made in footnote 2 to p. 74, the 19th Half-Division must have passed Woël before 10 o'clock. From thence to St. Hilaire is 5 kilometres, which can be comfortably traversed in 1½ hours. Hence there is no doubt that the 38th Brigade arrived at St. Hilaire earlier than stated by the work of the General Staff, and by the 16th and 57th Regiments. According to the time of the 1st Battalion of the 57th Regiment, it was just 11 o'clock. Since, as adjutant of this Battalion, it was my week for taking the Orders, in which duty the watches were daily set by that of Major v. Scherff, the Divisional Officer of the General Staff, my statement may make a claim, indeed, to relative correctness.

Notwithstanding the pressure of the situation, the troops about St. Hilaire received orders to cook.¹ I was during that time near the right flankguard, with several officers, among whom was Lieutenant-Colonel v. Roell. The officers, who were listening attentively for the sound of the firing of guns, thought we should soon be marching again. This 'fever of the fight' is almost always the consequence of that uncertainty which prevails among the troops as to the governing points of view of the leadership of the host. Here it was not the case. Almost every officer knew from the morning of the 16th pretty well what was the Strategic situation, and accurately what was the objective of this march. We had conversed on it during the march. We promised ourselves a great result, and were extremely astonished at finding St. Hilaire unoccupied, though cannon fire had been heard from the right for a considerable time.

The order for cooking, which under the circumstances excited reflection in the corps, is significant for the judgment of General v. Schwartzkoppen's view of the situation. For it shows that the resolve was to remain in St. Hilaire until further orders were received; further, that though the firing of cannon had been heard for a considerable time, and had increased in violence, it was believed there was time to cook before such orders arrived. It is certainly correct to use every opportunity for cooking, so that the troops do not reach their goal in a state of exhaustion. But General v. Schwartzkoppen had not met the enemy where he expected to find him; on the other hand, the General heard a sustained and heavy fire of guns from the right rear, so that the enemy must be in combat at a point other than that expected. What was the General's detailed view of the situation unfortunately cannot be described. It is sufficient that he had at that time no idea what was going on in rear of him; that he heard the thunder of guns, but took no measures to ascertain its cause. This, however, is the first requisite for a leader, as soon as the assumption under which an Order was given is recognised to be erroneous. If Count Brandenburg had the feeling as early as 10 o'clock, acted on his sense of

¹ The work of the General Staff mentions nothing of this.

the case, and reported to General v. Schwartzkoppen ; if the Count did not think of cooking, but was moved by one thought only, that of marching to the fire of the guns, then one must say General v. Schwartzkoppen ought to have come to the same resolve so much the earlier because Count Brandenburg had in some measure indicated to him the right way. While the fires were blazing some single horsemen came at full speed from the east, which roused everybody's attention. On the right wing of the 57th Regiment, from whence we had a clear survey to the right, the feeling was that an advance was imminent. So certain was this among the rank and file, that they already poured out the bubbling soup, before orders for that were given ; but the alarm signal did not ensue till an officer arrived on a horse covered with foam. There was now a general emptying of the cooking-kettles, and the troops entered on the march. It was 12 o'clock,¹ and the objective was Chambley. We did not trust our eyes, as we had found it on the map.

The following was the order of march :—The 4th Squadron of the 2nd Regiment of Dragoons of the Guard ;² the Fusilier-battalion of the 16th Regiment ;³ the 2nd Light Battery Xth ; Ist/16th ; IInd/16th ; the 2nd Heavy Battery Xth ; F./57th ; Ist/57th ; 2 companies /P. Xth. To protect the train, IInd/57th remained north-west of St. Hilaire ; and to it were attached some orderlies from the 4th Squadron of the 2nd Regiment of Dragoons of the Guard.

We must here touch shortly upon the view taken by the Headquarters of the IInd Army on the situation in the evening of the 15th. The opinion there was that the hostile army would make every effort to reach unmolested the other

¹ The work of the General Staff, p. 603, I., puts the time of marching from St. Hilaire at half-past 12 o'clock ; the 16th Regiment (p. 266 of its History), at 'Soon after half-past 12 o'clock' ; the History of the 57th leaves the question open.

² Of this Regiment one squadron had been ordered away to v. Voigts-Rhetz, the general commanding the Xth Army Corps ; another to the Cavalry detachment of the Xth Army Corps ; and the 3rd had ridden with General Count Brandenburg.

³ F./16th turned aside southward at Suzemont to establish by Mariaville Farm connection with the remaining portions of the Xth Army Corps.

side of the Meuse. Attention was therefore fixed on the practical aim of reaching this river with the larger part of the IInd Army before the enemy gained it. An Order in this sense was issued by Headquarters at 7 o'clock in the evening of the 15th. The smaller part of the IInd Army, of the IIIrd and Xth Army Corps, as well as the 6th and 5th Cavalry Divisions were, however, by the same Order, given another direction of marching, which also involved a Tactical Task. Consequently, on the 16th of August the IInd Army took two principal lines of march in different directions. The main body moved westwards; the smaller portion nearly north. The latter was intended to attack a strong rearguard of the enemy, which it was assumed might be still upon the road Metz—Vionville—St. Hilaire. Later on, and as circumstances might turn out, the right wing of the IInd Army was to follow the main body westward. As a matter of fact, however, something different occurred: the smaller right wing of the IInd Army ran against the whole army of the enemy, and the main body of the former was obliged to quit its original direction and come up to the right wing. A detailed inquiry concerning these interesting events, and their consequences, does not exist. Anybody who wishes to go more particularly into the matter must be referred to Numbers 71-78 of the 'Militär-Wochenblatt' of 1891; only it should be remarked that to the IIIrd Army Corps was given Vionville (Mars la Tour) as the objective of its march; and to the Xth, St. Hilaire.

A rather close inquiry is necessary as to General v. Schwartzkoppen's view, which here comes into question. General v. Voigts-Rhetz knew that the adversary had been on the 15th still to westward of Metz. It had been reported to him from Novéant by the 9th Dragoons among other things, and this gave rise to the measures we shall touch upon directly. The Headquarters, Superior, General, and Divisional, were on the 15th in Pont à Mousson. Here ensued a discussion by word of mouth between the Prince and General v. Voigts-Rhetz about the then assumed 'objects of the adversary, and our own objects.' Whether or not General v. Schwartzkoppen also took part in it I do not know. These discussions certainly had relation to that alone which

was known to the Prince or assumed by him concerning the enemy, up to the arrival of General v. Moltke's Directions (half-past 10 o'clock). But that sufficed to turn General v. Voigts-Rhetz' attention more to the northerly than to the westerly direction. For he believed that, since on the 15th the French were reported from Metz to Rezonville, the Xth Army Corps might possibly be caused to reach the great high-road further to east of St. Hilaire. We cannot suppose that General v. Voigts-Rhetz, on taking this view of affairs, kept it back from General v. Schwartzkoppen. And since the latter General had got farthest to the left, a fact which might render his circumstances the most difficult, he ought to have been from the first animated with the endeavour to keep up connection eastwards with those troops which, as General v. Schwartzkoppen was aware, had been directed thither by General v. Voigts-Rhetz. Here we have ever one of the most important problems, in the mutual giving of information among different columns, especially when they are, as in this case, so far separated from each other, and when the situation itself is so uncertain. General v. Schwartzkoppen should from the commencement of the march have employed for this purpose a part of the strong Cavalry force placed under his orders. Half a squadron would have been sufficient. But precisely this important matter was omitted ; and so one principal column remained in ignorance of the transactions of the others. From the moment when the General heard cannon fire from the east it was least permissible to neglect this measure !

It was prescribed for General v. Voigts-Rhetz to attain St. Hilaire—Maizeray with the Xth Army Corps, and in so doing 'bring on, to the best of his power, the succeeding portions of the corps that were still at Pont à Mousson, and in the Moselle Valley.' In solving this problem, and in consideration of his own opinion, which somewhat diverged from the Prince's view, General v. Voigts-Rhetz adroitly extricated himself from the difficulty. He despatched to St. Hilaire only the 19th Half-Division, with the Brigade of Dragoons of the Guard, in connection with a powerful reconnaissance of those encampments of troops that had been observed near

Rezonville on the evening of the 15th (I. 541 of the work of the General Staff). The reconnaissance itself was to be carried out by the 5th Cavalry Division. This was not guarantee enough for him, for he sent also Lieutenant-Colonel v. Caprivi, his Chief of General Staff, two Mounted Batteries, and a squadron of the 2nd Dragoons of the Guard from Thiaucourt to Xonville. At Thiaucourt there were also now the 91st Regiment and 1st/78th; at Novéant, IInd and F. of the 78th, the 1st Light Battery, the 1st and 3rd Squadrons of the 9th Dragoons. These two detachments were to unite at Chambley as a support to the reconnaissance. Further, the 20th Division was to move back on Thiaucourt.

Xonville and Chambley lie respectively to south-west and south of Mars la Tour, at about 5 kilometres from it. Thiaucourt is about 18 kilometres distant from Mars la Tour, and St. Hilaire 15 from Mars la Tour. The road Chambley—Xonville—Suzemont runs about parallel with the road St. Benoit—St. Hilaire, the average distance between them being 15 kilometres. If one consider the objective of the march of the IIIrd Army Corps to be halfway between Vionville—Mars la Tour, there emerge in clear form from these dispositions General v. Voigts-Rhetz' view of the thing and his aims. He wished to comply with the Prince's Order, but at the same time get as little as possible to the north-west, so that at need he might be able to support the IIIrd Army Corps by the shortest route with three-quarters of the Xth Corps. In view of the distances above given, this was made absolutely possible on the 16th by the measures taken, so far as three-quarters of the corps was concerned; it became, indeed, doubtful whether also the 19th Half-Division, and so forth, could get forward in time to act in support, if they had reached St. Hilaire. As these dispositions were known to General v. Schwartzkoppen before marching away from Thiaucourt, it rested with him to follow up continuously this aspect of the matter. This could only be done by Cavalry that had to keep up connection with the road Chambley—Xonville—Suzemont. It may perhaps be contested whether such an arrangement would have been the business of General v. Voigts-Rhetz or General v. Schwartzkoppen.

According to my view, obviously the latter. For he held command of the column; General v. Voigts-Rhetz only accompanied it. And General v. Schwartzkoppen was very jealous of his rights.

Since the bringing of Cavalry between the marching-roads of the Xth Army Corps had been omitted, it was, upon indication that fighting was going on to the eastward, necessary to render immediate assistance by adequate means; all the more, as no enemy was seen in St. Hilaire and its neighbourhood. So, before 10 o'clock there should have been put into operation as many organised bodies for passing information as possible: 1st towards Chambley, 2nd towards Xonville, 3rd even to Thiaucourt. These could learn there how matters were regarded and dealt with at those places; and report accordingly to General v. Schwartzkoppen. As the state of affairs at St. Hilaire was then made clear, there were requisite in these directions various orderly officers and officer patrols. In the direction of Xonville, where efforts must be devoted to discover the most important place, the track of Lieutenant-Colonel v. Caprivi, there was requisite the officer of the General Staff of the 19th Division.

That my deductions are right is proved by the work of the General Staff (I. 595). 1st. Before reaching Thiaucourt at half-past 11 o'clock with the 20th Division, General v. Kraatz, prompted by the 'thunder of cannon sounding across,' had despatched officer patrols in a northerly direction. So what General v. Schwartzkoppen should have done in this direction is here indicated. General v. Kraatz then, with the Division, took the direction of the thunder of cannon. This for an example in regard to reconnaissance. 2nd. The named detachment of the 78th, &c., had been at Novéant, and from there was to unite at Chambley with the 91st Regiment (without the 1st and 2nd Companies), 1st/78th, the 1st Heavy Battery, and two squadrons of the 9th Dragoons. The leader of the latter detachment used a half-squadron to establish connection with the detachment in Novéant. This for an example in regard to communication of the marching columns (work of the General Staff, I. 569). 3rd. The 20th Division was at half-past 11 o'clock at Thiaucourt (work of the

General Staff, I. 595) ; Lehmann's detachment (91st, &c.), as early as a quarter to 12 o'clock, placed itself at the disposal of the IIIrd Army Corps (work of the General Staff, I. 569), acting also in consequence of the thunder of cannon heard in Chambley. From here to Vionville is $6\frac{1}{2}$ kilometres. Therefore we may assume that Lehmann's detachment had not cleared Chambley till about 10 o'clock. Now, if from the beginning patrols had been despatched towards Chambley (15 kilometres) to maintain the connection, they would have learnt that that detachment was continuing its march in a north-easterly direction. In that way General v. Schwartzkoppen would have been enabled to know, at latest by half-past 10 o'clock, that the detachment from Chambley also was marching to the thunder of cannon. Thus, out of the connection of the troops, it would have come about that reports would be delivered from the decisive direction ! The detachment from Novéant had not received the order for marching to Chambley till it had already followed the 5th Division ; and its leader also, when he about Gorze heard a continuing thunder of cannon, moved to the field of action (I. 555). Thus one sees that along the whole line, the leaders, of their own resolve, and in pursuance of measures they had independently adopted beforehand, deviated from the orders received for the day ! 1st, Count Brandenburg, because of the thunder of cannon, marches away from St. Hilaire at 10 o'clock, the 19th Half-Division being still a good league behind (about south of Woël) ; 2nd, Colonel Lehmann marches from Chambley for the same reason about 10 o'clock ; 3rd, Colonel v. Lyncker earlier still from Novéant ; 4th, General v. Kraatz at half-past 11 o'clock from Thiaucourt ; 5th, Lieutenant-Colonel v. Caprivi from Xonville. Only General v. Schwartzkoppen did not march, although he knew that there were none of the enemy about St. Hilaire ; but whereas the 19th Half-Division reached furthest away, the need also for it to be *à portée* was the most pressing. General v. Schwartzkoppen had to hit on all arrangements for this ; and they were very simple. If he had himself been late with one or other of his arrangements, so that the desirable result were perhaps not attained, he would yet have done what was proper in a leader.

From Mars la Tour to St. Hilaire is 15 kilometres. Had the 5th Cavalry Division fulfilled what was required of it, it could have given information to General v. Voigts-Rhetz (and Schwartzkoppen) at the latest by 10 o'clock, on the road to St. Hilaire. Indeed, so early as half-past 10 o'clock the Prince received from General v. Alvensleben in Pont à Mousson the first report from Vionville, about 6 kilometres further than from there to the road Thiaucourt—St. Hilaire. That this did not take place made more difficult the situation of the 19th Half-Division.

But one knows after all how easily the most weighty matters, in the heat of the fight, fail to be reported. I hold now, as before, on all these grounds, that the order to cook, &c., was inexpedient; and I find a corroboration of this view also in the fact that the 20th Division, which was much further in rear, and had from Thiaucourt further to go to the field of action than the 19th Half-Division had from St. Hilaire, did not cook, but marched, and reported. As regards the latter point, the circumspection of this General, and the contents of the report he addressed to Headquarters, may be called exemplary.¹ The General also of his own accord informed the 19th Division of his march to the field of action. Can one remark any act like this of the 19th Division towards the 20th? And was not the former, with its strong Cavalry, in some degree the feeler for the latter?

The IIIrd Corps had as objective for its march Mars la Tour—Vionville. But the French might very well be away beyond Mars la Tour when the IIIrd Corps gained the great road. The fighting might thus be much nearer than 15 kilometres. And it is well known that, according to weather and direction of wind, one may make serious mistake as to sound.

(b) *Forming Up*

Until he reached Suzemont the Divisional Commander had the intention of moving by Ville sur Yron to fall on the flank of the adversary. But on arrival that direction appeared

¹ *Kriegsgeschichtliche Einzelschriften*, part 11, p. 661.

to him too venturesome. From horseback, indeed, all one could perceive were long lines of fire and thick clouds of dust. But the heavy fire, and the wounded men of the IIIrd Army Corps who met the Half-Division as it advanced, presented no exactly favourable estimate of the state of the fight, and may have inclined him at first to seek support in the remaining portions of the Xth Army Corps; which was a correct thing.

Among the wounded I recognised a Lieutenant Dreising, adjutant in the 52nd (?) Regiment. Horse and rider were bathed in sweat and dust; and it seemed to me as if the rider had had a fall. He had also a shot-wound through the leg. His features were scarcely recognisable. As we had been cadets together, I rode up to him, held out my hand, and said something; but he rode on showing absolutely no interest. The servant being asked how the fighting was going, answered, 'Badly'! Soon after I was met by another officer, of the 20th (?) Regiment, who had been shot through the chest. Before I got a word out, he said: 'Well, I hope you will have better luck than we had. You will be astonished. It is no cat-shooting, like A.D. 66.' This was not exactly cheering; but there was in the officer's tone a touch of soldier-like humour. These and others had all taken the road to St. Hilaire. As I was struck by this, I made known to my commanding officer my misgiving as to that. He then charged me to turn the 'stream,' as he called it, of the wounded towards the south. But most of them failed to understand my arguments properly. Lieutenant Dreising's servant, however, a sharp Brandenburger, turned his master's horse at once in that direction, and now the others followed on, so that after a few minutes I was again at my post. As fate would have it, Dreising was my neighbour that night. In the provisional hospital probably our overalls had been changed; at any rate, the next day I had a pair with a shot-hole through the region of the calf, while mine had gone. Thus I was sent on in Dreising's leg-gear.

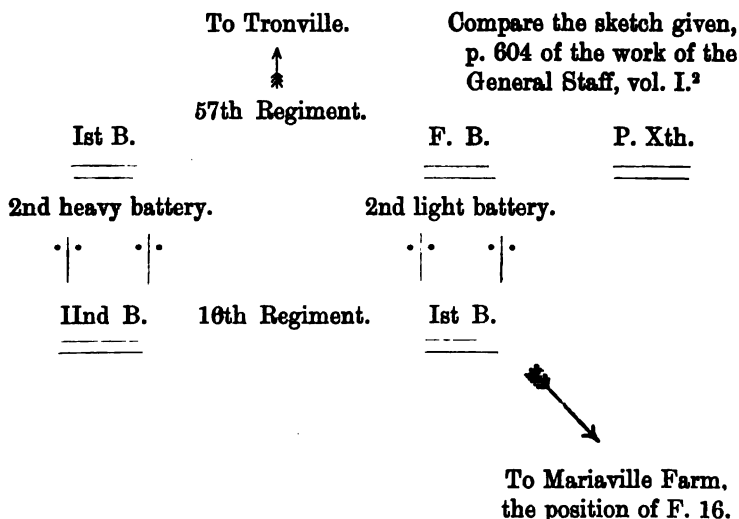
The work of the General Staff states (p. 604) that the 4 battalions, after they had formed up for fighting at Suzemont, had continued their advance on Tronville, and puts the

time of forming up at 4 o'clock in the afternoon. Both statements are erroneous.

The Brigade formed up only once for action. That was not by Suzemont, but somewhere about 1,000 metres south-west from Mars la Tour, on the left bank of the tributary stream of the Yron, which here cuts deep through the surface, and on whose steep slopes a Doctor Josten of Ist/57th fell with his horse.¹

Another point helping to fix this was the episode of an ambulance cart, a doctor, and some ambulance orderlies. The cart had lost a wheel. When I asked the doctor how he came here, he told me he had just escaped, but with difficulty, from some Chasseurs, who had attacked his dressing-station. Such incidents are good mementos.

Sketch of Forming up of the 19th Half-Division 1,000 Metres South-west from Mars la Tour



¹ The fall tore away the horse's head-gear, and the reins were broken. The Doctor in his distress called to me, asking what he should do now. I said to him: 'Let the beast stand by the smashed ambulance cart hereafter named'; and he did so.

² [That is given at p. 398, footnote, of Major Clarke's Translation, 1881 (Clowes & Sons, &c.), of *The Franco-German War, 1870-71*, the German

The Brigade stood with its front to Tronville, and, besides, it was not at Suzemont at 4 o'clock. From St. Hilaire to Mars la Tour is 15 kilometres; we marched without intermission, and thus must have been, at half-past 3 o'clock at the latest, south-west of Mars la Tour.¹

From Suzemont, Generals v. Schwartzkoppen and v. Wedell had ridden on, to acquaint themselves with the situation and with the country. As to the latter, it would have been possible to attain certainty; for General Count Brandenburg II. had since 12 o'clock been in proximity to the enemy on the plateau from Bruville as far as Ville sur Yron, with 4, and later with 5 squadrons and a battery. When, then, the adversary's IVth Corps began to form up on the left wing of the IIIrd (from St. Marcel to Greyère Farm), Count B. was

official account. The disposition of the Brigade somewhat varies from this given by Hoenig.—TRANSLATOR.]

¹ The 16th Regiment upon this point says (p. 266) as follows: 'At the village of Suzemont the Brigade formed up, at half-past 3 o'clock, on a meadow to the south of it, through which ran the Yron stream.' This agrees with my notes; only for Suzemont Mars la Tour must be substituted, for the forming up was carried out nearer to the latter than the former.

The 57th Regiment (p. 75) comes nearer to my description, for it puts the time of forming up at a quarter to 4 o'clock, and the ground as between Mars la Tour and Suzemont, south of the great road. But it is incorrect in the statement that the 16th Regiment stood in the First Line. Rather, it was even a matter of remark that the 57th Regiment, which in the march was behind, was now brought forward through the 16th. The reason was, of course, that it was the junior regiment which by the custom of those days came into the First Line.

In the History of the 57th Regiment (p. 79), at this place, the error of the work of the General Staff is thus explained: 'That it was based only on the official reports written immediately after the battle,' whereof that rendered by the 57th Regiment 'was not sufficiently exhaustive.' Hereon I would remark that the report written immediately after the battle fills about—ten lines, and contains, properly speaking, nothing; that the 'inquiries of the author' of that regimental history would appear to have been confined to a use of the 'Two Brigades,' for at that time there was no other authority; but that in the work of the General Staff the composing of the description was the result of the preparatory labours of a then major on the General Staff, who belonged to the department of that Staff which deals with military history. The report of the 57th Regiment was, indeed, very incomplete; but instead of simply giving the state of the case, which can hardly have been only known to me, and which quite excuses the account given by the General Staff, the writer seeks to wash the General Staff clean, but still—at the cost of the blameless regiment, without attaining that object.

compelled to retire on Mars la Tour, where he arrived at 3 o'clock. So it is established that the IVth Army Corps of the enemy only moved into the fighting-line from 2 o'clock in the day. Thus, as to the country as well as the forces of the adversary, this General must have been best able to judge, and have reported thereon. Just as much had the 18th Regiment of Dragoons the duty of reporting. Whether this was adequately performed remains to be proved. The Communications concerned did not reach General v. Schwartzkoppen.

Up to 2 o'clock in the afternoon the German fighting-line stretched to the north end of the Tronville thickets and lay across the road Gravelotte—Mars la Tour—Verdun. After that hour it was forced back towards this road. At 2 o'clock Grenier's Division had already occupied the height 846,¹ and at half-past 2 o'clock the north end of the Tronville thickets;² up to 4 o'clock it was joined by portions of Cisse's Division in the direction of Greyère Farm. The 5th Chasseur-battalion of Grenier's Division, moving quickly in advance of it, had towards half-past 2 o'clock taken possession of the patch of wood to northward of Mars la Tour, in the angle between the two streams. The 98th Regiment also came there later. Though the French Cavalry, placed near Ville sur Yron, was not very active, yet it had become aware that hostile forces were marching up from the rear of its own position (38th Brigade), and had reported thereon to General Ladmirault. The latter had thereon ordered the above movement, and hastened to occupy³ the strong position north of Mars la Tour, which nature indicated. The height 846 was the

¹ All statements as to the country rest on the plans of the battle in the work of the General Staff.

² The Tronville thickets never fell entirely into possession of the French, but only the northern part; and our danger of a sortie from them was small. For on account of their thick underwood they were in part impassable, at any rate difficult of passage. General Grenier avoided them apparently with purpose on these grounds. This will be evident from the later description, as one of his brigades from the north edge of the wood took the direction of Mars la Tour, while the 20th Division in the thicket itself had only smaller detachments and scattered troops to encounter.

³ Besides, Marshal Bazaine had urged an acceleration of the march.

Strategic point of the battlefield, on the left wing, north of the road Vionville—Mars la Tour. It commands this neighbourhood in all directions, as I have later convinced myself. And it lies exactly in the line Flavigny—Vionville—Bois de Tronville—Bruville. From it the French fired on Mars la Tour, and swept the whole field of action of the 88th Brigade. But if one did not anticipate the adversary in reaching the height 846, one must not think of taking it by storm, for failure would be certain.

The case of a single weak brigade far away from the adversary's flank, and upon his own line of departure, approaching the battlefield, is a thing of such peculiar nature that it must fill the adversary with concern. For he, watching it from the height 846, as it formed up, must suppose that other forces would follow from the same quarter, and that those before him formed the advanced troops. At all events, if one place oneself in the adversary's position, one could only reach this reflection, because any other procedure on our part would have been almost inexplicable. That really only one brigade came from this direction the adversary had no right to assume without further evidence. It is needful to draw attention to this, otherwise one cannot comprehend the sudden stop of Ladmirault's counter-attack in the battle, at a moment when he was victor, and had the fortune of the arms of France in his hand. It must be added also, that the Dragoons of the Guard who were taken prisoners strengthened him in the assumption that the Prussian Guard also had arrived (Compare the Report of Bazaine, and of v. Rohr).

With these remarks we must not come to a close. The interesting situation demands that we should consider how matters would have shaped themselves had General v. Schwartzkoppen investigated the circumstances with more earnestness. Soon after 11 o'clock¹ his detachment stood,

¹ On the day itself I made all specifications of time, by order of Lieutenant-Colonel v. Roell. My pocket-book fell from me when I was wounded. In it were my name, a second ribbon belonging to an Order, and other distinguishing marks that would identify the owner. When the battlefield was cleared, it was found near the body of Lieutenant-Colonel v. Roell, and sent after me to the hospital by the corps.

ready to march, at St. Hilaire. So he was able to march. Ought he to? Yes, without doubt, assuming that he had promptly reported the same. General v. Schwartzkoppen had orders to reach St. Hilaire. He allowed General Count Brandenburg to march away, but himself stayed behind, at a moment when the general Strategic situation, till then uncertain still, had cleared itself up by the conflict beginning. But, if his only decision was to divide his forces, must he not then give the order, 'Part of the Cavalry remains here,' while he had to lead the Infantry and Artillery promptly to the fire of the guns? In case the event showed later that Cavalry was still necessary, it was able to reach Mars la Tour at 2 o'clock. So one may say not only the situation was misunderstood, but the nature of the different arms, in conferring on Cavalry the task of Infantry, and on the latter that of Cavalry.

If General v. Schwartzkoppen had at 10 o'clock begun the march from Woël to Mars la Tour, when it was reported to him that there was no enemy in the neighbourhood of St. Hilaire, then the Half-Division would certainly have been able to gain the battlefield at 1 o'clock, and then the occupation of the height 846 would perhaps have been taken into consideration.

(c) *The Fighting-ground*

At half-past 3 o'clock the Half-Division had reached the specified point south-west of Mars la Tour. From the foregoing account some particulars respecting the configuration of the battlefield arise. I refer to the plans in question, contained in the work of the General Staff, and doing so I remark as follows:—Mars la Tour is commanded from north and west. It was then a miserable village, only occupied by a few mounted Chasseurs of the enemy, who made off at our approach. The distance from the Tronville thickets to the road Mars la Tour—Jarny amounts to 2,500 metres; that from the height 846—Greyère Farm to the road Mars la Tour—Vionville just as much. Running eastward from Mars la Tour is a glen that makes a bend eastward and northward about the village. At a point about even with the western edge of the village it turns sharply to the north, and takes further on the

name Yron. Into this, about 600 metres south of Greyère Farm, runs another glen, which, coming from the east of the Bois de Tronville, and enclosing that wood to east and north, runs off in a westerly direction from its northernmost point. Its average distance from the French position (height 846—Greyère Farm) amounts to about 650 metres. The sides of the latter one are at first not steep, but from the Bois de Tronville they become abrupt, and halfway between it and Greyère Farm they reach an average height of 12 metres, with an average width at the bottom of 60 metres. The conditions of the first glen, running northward, were similar. Both, on the day of the battle, were quite dry and hard, only the bottom of the first was wider. The highest point of the French position was the height 846, which sinks down westward to 720. Midway in the distance between these points ran, in an oblique direction, a road from Bruville to Mars la Tour; east of this a second ran, also obliquely, from the same place; it joins the first. Both of these led obliquely across the glen in front of the French position. The position not only commanded the field of action on this wing, but it had in front an important obstacle to movement, which could only be reached under cover by using the Tronville thickets and the glen that ran from south to north. Otherwise the area, 2,500 metres square, offered little cover. The surface falls in a generally southern direction as far as the road Vionville—Mars la Tour; and from here rises again gently to the south. For us the best line of approach was the glen running north; but, before the arrival of the 38th Brigade, General Ladmirault, who recognised its importance, had already closed it by means of the 5th Chasseur-battalion. In the angle where the two glens unite was a small copse that was taken possession of by this Chasseur-battalion; consequently, to turn the French position from this line of approach—itsself a good one—would not have been possible till the little wood had been carried. From the road (the more westerly) from Bruville to Mars la Tour, at 80 to 100 metres south of the glen running from east to west, a bank of earth about 150 metres long, with a hedge, stretched away to the east. It is of great importance as to the course of the battle. I mention it for

that reason; besides, it formed to the north of the contour-line 780 the only cover in the whole district. Not only was the field of action, however, marked by impossibility of turning it and absence of cover, but later on strong obstacles to movement came to light, of which also the work of the General Staff has made no mention.¹ For the glen that ran round Mars la Tour consisted of parcelled-out meadows, which were separated from each other by wire fences, and extended as far as the contour-line 780; that is, they extended over a space of 300 metres on the average from the road Mars la Tour—Vionville up to there. Although part of this ground could not be swept by the adversary's Infantry fire, yet cutting through the fences caused loss of time and disturbance of the movement; and, in the case of the 57th Regiment, sensible losses from the fire of Artillery, mitrailleuses, and Infantry.

The character of the field of attack, in respect to these features, which could not be perceived from the map of the General Staff, was unknown to the troops themselves. Further, the deployment of the 5½ battalions was afterwards so quickly proceeded with that no time could be spared for the closer survey.

But it was possible for the higher leaders to know all these things, for that district had till 2 o'clock been entirely in our hands;² and this refers not only to the country, but also to the strength of the adversary. If, however, before the order for attack we were not informed on this last point, yet shortly before the attack we could make out pretty distinctly, with the naked eye, the hostile masses that were deployed upon the whole front.

On our side 5½ battalions were at disposal, so that we could furnish not quite two men to a metre. Besides, those battalions had to fight over unprotected ground, from the contour-line 780 to the height 846—Greyère Farm. To overcome the adversary they had to traverse, from contour-line 780 to the adversary, on the average, 1,900 metres of gently falling ground, with one important and unknown obstacle along the whole front, and another at one part of it. One

¹ It mentions them first in connection with the attack of the 1st Dragoons of the Guard, though the Infantry was principally delayed by them.

² Compare pp. 86, 87.

needed not to stand opposite Frenchmen and Chassepots to prophecy non-success. Notwithstanding that theory must blame its execution, yet the Tactical and particularly the moral effect which this attack made upon the adversary was so great for the special reason that the attack was conducted under circumstances that gave probably the best proof of its energy. The energy of the attack confirmed General Ladmirault in the apprehension that more German troops would follow from St. Hilaire.¹ Concerned for his right flank, General Ladmirault regarded that side only, and anxiety lest a stronger force should fall on him there withheld him from reaping all the Tactical results that were his.² When General Ladmirault, at the Commission of Inquiry, was asked why he had not made use of his success, he answered, indeed, '*Pas d'ordres.*'

When the 88th Brigade was halted after forming up southwest of Mars la Tour, the men were at first addressed by the field-chaplains. The Evangelical preacher Aebert, who was the first to speak, showed by his manner so much emotion, chose his words so awkwardly, and used such a whimpering tone, that people could not be exactly edified by this 'spiritual consolation.' And this incident has led me to the conviction that, if a chaplain does not feel himself a soldier as well, he may do as much harm as good at such moments, and that it is best in most cases to keep the chaplains away from the troops. While the preacher was speaking, one saw a single rider galloping towards us at top speed straight from Tronville, his stole fluttering in the wind. As he came closer I recognised in him Stuckmann, the Catholic chaplain, and a dear acquaintance from 1866. He stopped his horse like a perfect Cavalryman before Colonel v. Cranach (1st Line), so that this picture of resolution had by itself a reanimating effect. After exchanging a few words with the Colonel, he rose in his stirrups, and spoke thus, with his sharp Westphalian accent: 'Comrades, the IIIrd Army Corps is heavily engaged. To you falls the task of rescuing it. Attack the enemy, then, defying death; then God will be with you.'

¹ Indeed, the work of the General Staff allows for the assumption (p. 601, I.), emphasising it by spaced type.

² Compare p. 88.

Amen!’ That was to the point, and worked like a spell. Immediately after this the Regiment had orders to let fly the colours and load; and then Colonel v. Cranach addressed to the men some words like these: ‘On the march you have shown that you are stout fellows; show yourselves so in the fight; and, whatever comes to you, hold your colours high, so that no Frenchman’s hand gets hold of them. Now with God!’

(d) *Beginning of the Attack*

After the arrival on the battlefield of the 19th and 20th Divisions and their commanders, General v. Voigts-Rhetz had control of 8 fresh brigades; and, as the battle stood, he believed he ought to launch them in the offensive, in order to relieve the IIIrd Army Corps. The Orders for this purpose received from the Xth Army Corps had bearings in two directions: 1st, General v. Kraatz with 10 fresh battalions was to push forward in the general direction, through the Tronville Wood, against the Bruville height. So to him, as the state of the fight then was, fell the real frontal blow. 2nd, General v. Schwartzkoppen with the 19th Half-Division had to support this frontal blow by a blow from his side in a north-easterly direction (north-west point of the Bois de Tronville). The latter was at that time regarded at the General Headquarters of the Xth Army Corps as in a manner a flanking movement. 3rd, The two movements were to be carried out in concert. If an offensive blow of this nature, under the circumstances then existing, be held correct, then it was well conceived by the General Headquarters of the Xth Army Corps. For, assuming the persons controlling the two movements to use correct apprehension and consideration, the line of advance with most cover was afforded by the Bois de Tronville. And, if in good time 10 fresh battalions had made their appearance on its northern edge, Grenier’s Division would not have been able to adopt the offensive in the direction of Mars la Tour. But it would at least have been held fast. Also the 19th Half-Division had in the Yron glen a covered approach, within certain limits. The success of both movements depended indeed on the leaders of the two attacking bodies. So they ought

also to have come to an understanding one with the other. Now between the issuing of the Order of the General Headquarters and the attack of the 38th Brigade the state of affairs on the enemy's side had however altered, inasmuch as he, until that attack was made, prolonged his front so considerably to the west that if the 38th Brigade continued to regard the northern point of the Bois de Tronville as the object of attack, it was not flanking the enemy, but was itself outflanked. But it seems that on this day special difficulties offered themselves to a combined and united attack with masses in pretty close proximity to each other, and themselves in close assembly. For not only did the plan fail to be carried out, but the 10 battalions of the 20th Division retired almost at the same moment that v. Wedell's Brigade attacked. By this circumstance the meditated frontal blow dropped out, and what took place was the isolated attack of the 19th Half-Division. We must not pursue further the causes which destroyed already in the bud the attack conceived as a united one. The event however placed both the General Commanding the Xth Army Corps and the Commander of the 19th Division in a situation painful in the highest degree. For neither of them learnt what actually took place till it was too late. Difficult as it is to comprehend this if the necessary connection had existed between the General Headquarters and the two divisional commanders on the one hand, and among the latter themselves on the other, it is yet so far explicable in that the attention of the Commanding General, and that of the Commander of the 19th Division, was riveted at this moment by the adversary's movements in the direction of Greyère Farm. Certainly one should not proceed to a flank blow until the front has come into action. General v. Schwartzkoppen was as regards this left in the lurch, and to that extent he is free from blame. But still he was not precluded from the possibility of learning what General v. Kraatz was doing.

General v. Schwartzkoppen had come to an understanding with General v. Wedell as to his intentions, but in all ranks subordinate to them a complete uncertainty prevailed; and, even to Colonels v. Cranach and v. Brixen, only the general

direction was indicated. At any rate, no such timely and exhaustive mutual understanding ensued as at Popowitz; but the whole matter from the first was characterised by precipitation and confusion. I know for certain that, for instance, the battalion commanders did not know what they had to do. For Lieutenant-Colonel v. Roell, who fell, made the sarcastic remark: 'If Stuckmann had not been there I should have known nothing at all. The little I do know I have learnt from his speech. To-day, it seems, Stuckmann has the whole business.' Now since General v. Wedell and Colonel v. Cranach were riding about 50 paces in front of Roell, I said the best thing would be to get information from them. Meanwhile Ist/57th, about 1,000 metres south-west of Mars la Tour, crossed the glen which is there situated. Its sides were in some places so steep that it was only with the greatest pains that the order could be kept up, and the two batteries which were meanwhile advancing on the left of Ist/57th fell into serious embarrassment. They managed however to change from the trot to the walk, and moving diagonally to overcome the slopes, of whose character neither battery had had any idea. This incident, with its scenes both comic and serious, hindered v. Roell from following my counsel. But as during the crossing of the glen General v. Wedell and Colonel v. Cranach waited on the eastern edge, Lieutenant-Colonel v. Roell was able to join them; so that I again had an opportunity to observe closely all the arrangements of the superior officers, up to the Commander of the Division. What I heard however was miserably little, though I saw all the more.

In the meantime the French had taken up the firing, without our knowing against whom. But this soon became clear to us. For IInd/16th after moving from the place of forming up had passed west of Mars la Tour, and taken the direction of Greyère Farm. Ist/16th, again, had moved forward from the place of forming up, through Mars la Tour, and the increasing fire of the enemy was intended chiefly for these two battalions, which were already in the fight, while F./16th, Ist/57th, F./57th, 2 companies of Pioneers, and the two batteries were still south of Mars la Tour, and west of the great road from here to Les Baraques. All of these passed

round the village on the east side. There was therefore no question of a preparation by Artillery. This did not take up its first position south of the road Mars la Tour—Vionville till the Infantry (IIInd and Ist/16th) was already under fire. Again, nothing was noticed of choosing a position for fire, or of any order given to the Artillery. When we gained the great poplar-planted road that leads from Mars la Tour to Les Baraques, then for the first time we surveyed pretty clearly the hostile array, which extended from the height 846 to Greyère Farm. At the same time there roared round us innumerable shells, a sign that the French had noticed our movements and had awaited our appearance. About 200 paces further General v. Schwartzkoppen joined the officers mentioned before; and only at this moment our batteries opened fire from their first position. The 38th Brigade therefore formed one Line, and from the left wing to the right IIInd/16th, Ist/16th, F./16th, Ist/57th, F./57th, 2 companies P. Xth; of which battalions, F./16th was at first somewhat to the rear. (It came from Mariaville Farm.) Till then General v. Schwartzkoppen was south-east of Mars la Tour; and that was the moment which is of decisive importance as regards his Tactical dispositions. It is established that, up to that moment, the General Commanding the Xth Army Corps had independently directed the left wing of the battle, and that he considered the proper duty of the Xth Army Corps was to save the IIIrd Army Corps from being overwhelmed. That object would not have been attained by a defensive demeanour. It must devolve on Tactics to understand the situation and act accordingly.

Now these questions arise:—1st. Did General v. Schwartzkoppen know the general situation? 2nd. Did he correctly apprehend the Order received? 3rd. Did he make any Report on the alteration that had meantime taken place in the state of things on the enemy's side (prolongation of the right wing), or did he at least attend to this by arrangements independently made? The 1st one will never learn; 2 and 3 are contradicted by his measures.

There can be no doubt that on the part of the Xth Army Corps an attack was ordered. The regulation of it according

to time and circumstances, so far as the 88th Brigade was concerned, was still the business of the 19th Half-Division, by reason of the change that had meanwhile occurred on the adversary's side. It must not and could not give ambiguous Orders, how far we had to push forward, and what should be occupied. As concerns the method of fighting of the Infantry, General v. Schwartzkoppen, where he could exert personal influence, endeavoured to attain correctness in regard to the Tactical formations. When the Brigade set forward it was exactly 4 o'clock.¹ We had had, as was specially remarked, our front to the east; and the Battalion on the left wing (IInd/16th) stood nearest to Mars la Tour. Since it from the spot advanced on Greyère Farm, while the last companies of the right wing had to execute a wheel, extending to 2,500 metres, the result was a movement of a scattered character from start to finish. IInd/16th was already firing when the remaining battalions had only just set forward; and the general consequence of this was: 1st. Successive movement of the battalions into the fighting-line; and, the further one had to fetch to the east, the greater the distance, and the greater the speed with which one desired to shorten it; hence 2nd. Hurry. But, despite greater speed, no proper unity was attainable in the movement; the battalions, rather, were drawn off individually from the left to the right wing; and the right wing only reached the enemy's line in a state of complete exhaustion, at a moment when the battalions of the left wing were already repulsed.

(e) *Personal Observations*

In this movement we passed by the south-east edge of Mars la Tour, where General v. Schwartzkoppen and Major v. Scherff were on horseback in the midst of a heavy Artillery fire. In their neighbourhood, but somewhat to the rear, stood two squadrons of the 4th Cuirassiers, which soon, however, as the hostile Artillery fire became heavier, wheeled

¹ V. Bohr (p. 127) puts the time when the 88th Brigade passed Mars la Tour at 5 o'clock, and the interposition of the 1st Regiment of Dragoons of the Guard at a quarter to 6 o'clock. The first is too late; the last correct.

about and retired (see Sketch II.) ; their place was taken by the 1st Dragoons of the Guard. Count Brandenburg II. rode on the Chaussée Vionville—Mars la Tour.

The troops were moving actively forward. Lieutenant-Colonel v. Roell was riding in the line of skirmishers of 1st/57th. And as they passed General v. Schwartzkoppen, the spirited General joined the Lieutenant-Colonel, and spoke some animating words to the men. As, at that time, the liveliness of the Mitrailleuse-, Artillery-, and Infantry fire from the left front astounded everybody, General v. Schwartzkoppen said to Lieutenant-Colonel v. Roell: 'Roell, just extend some strong swarms of skirmishers. Then we shall get hold of them'; and later, 'The left shoulder forward somewhat, on the point of the wood'; the General indicating the north-west corner of the Tronville Wood. Meanwhile 1st/57th had extended two *Züge*, and taken for their direction this point of the Bois de Tronville; so that it seemed as if a gap would be formed between the 16th and 57th Regiments. General v. Schwartzkoppen, who stayed some time beside Lieutenant-Colonel v. Roell, thereupon gave the order, 'Roell, a whole company in there.' This was done (2nd/57th). Shortly after the horse of its Commander was shot. He, being very short-sighted, and lying some time under the animal, lost supervision of the company, which now got the right shoulder too much forward. This is explained by the direction of the glen which runs round Mars la Tour, into which the men pressed to seek cover against the murderous fire. Its 3rd *Zug* joined on to the skirmishers of 1st/57th (left); the gap between the 16th and 57th however was not completely filled up till Lieutenant-Colonel Saunow inserted F./16th. Now F./16th, till then, was about 150 metres further back than the skirmishers of 1st and 2nd/57th; but, having a shorter distance to wheel, it annulled this difference later. I have related this in anticipation, to explain how the fighting-line was formed; for, when it came to a halt, the companies of F./16th were between the completely extended 1st and 2nd/57th.

Besides these orders of the Divisional Commander no others reached the troops in the course of the fight till the one directing the retirement. The Brigade-Commander rode to

the north of Mars la Tour, whither also Colonel v. Cranach followed ; and as Ist/57th crossed the road Mars la Tour—Vionville the two batteries took up a position north of the village. I will now complete what I further observed and heard in the neighbourhood of the Divisional Commander. Just now Lieutenant Eggeling from the General Headquarters of the Xth Army Corps rode off ; then Major v. Scherff pointed to the 'map, and turning to the west, remarked to General v. Schwartzkoppen : 'That is the 5th Cavalry Division, which will support the attack on the flank.'¹ The Division at this moment was trotting past Mars la Tour on the south. As Ist/57th gained the road Vionville—Mars la Tour, I became aware to our right (rear) of the approach of columns of considerable size (it was the 40th Brigade). Somewhat later I saw in rear a Staff riding upon and near the Chaussée (Count Brandenburg II.). One remarked absolutely nothing of the whole line of battle east of the Bois de Tronville. General v. Schwartzkoppen did not turn his horse before reaching the road Mars la Tour—Vionville ; he then rode back with Major v. Scherff.

(f) *Proceedings on the French Side*

Before entering upon the course of the attack it seems to me necessary to exhibit, according to the present state of the inquiry, the development of affairs on the adversary's side up to this hour. When General Ladmirault received the order to join in the battle, he directed Grenier's and Cisse's Divisions to wheel off to the south, Grenier in advance ; Cisse in rear of him ; finally Legrand's Cavalry Division ; the Artillery Reserve between the last two Divisions. When the Corps had got the direction of Bruville, the General himself, with his Staff, hurried far to the front, and he reconnoitred in person the tract of land from the Yron up to the Bois de Tronville. Arrived at Greyère Farm, he considered it necessary at once

¹ According to that this officer had communicated to General v. Schwartzkoppen the intentions of General v. Voigts-Rhetz in respect to this Cavalry Division.

in force to close¹ the (approach) valleys which coming from south and east join here. He accordingly ordered at once:—

1st. A 12-pounder battery forward, which he himself posted west of Greyère Farm in such manner that it could sweep the valley that came from the south. This battery opened fire as early as 2 o'clock against the four squadrons that then stood opposed to it of the 1st Dragoons of the Guard. Of these Lieutenant v. Bismarck's horse² was killed. The battery continued firing uninterruptedly as objects presented themselves.

2nd. For a secure flank guard General Ladmiraault brought up the 5th Chasseur-battalion; and then

3rd. The whole 98th Regiment into the neighbourhood of Greyère Farm. At half-past 2 o'clock there stood of these forces: the 5th Chasseurs west of the valley the battery was to sweep, and advanced 500 metres south of the battery; the 98th Regiment east of the valley and south-east of the battery. When the General had thus disposed the troops that were at the head of Grenier's Division (the advanced guard), the main body had come up, which he caused to continue its march in a due southerly direction (about on Tronville). At first it was successful in the offensive, was later repulsed by the 20th Division; and before the arrival of General v. Schwartzkoppen it was thus disposed on the ridge of Bruville: the 13th Regiment as skirmishers north of the ravine to about 200 metres from the great road from Bruville—Mars la Tour; and behind it the 43rd Regiment in a commanding position to the left; further back, in rear of the right wing of the 13th Regiment, the 64th Regiment as far as the great road. Upon the great road was a mitrailleuse battery; on the height 846 another battery (both of Grenier's Division).

Meanwhile, up to 8 o'clock the whole Artillery of Cisse's Division had hastened forward, and come into position in concert, west of the great road from Bruville. Of the Infantry of Cisse's Division, it appears that from half-past 2 o'clock the 57th and 73rd Regiments rested 'north of the ravine of Greyère,' their knapsacks taken off. But it was not till now

¹ *Bonin, Campagne de 1870*, printed in v. Rohr, p. 125.

² V. Rohr, p. 125.

that the 1st and 6th Regiments and the 20th Chasseurs marched up, as well as the Artillery Reserve and Legrand's Cavalry Division. But already by 2 o'clock 1 regiment of Chasseurs d'Afrique, 1 regiment of Dragoons of the Guard, and 1 regiment of Lancers of the Guard stood 2,000 metres north of Greyère Farm, west of the road to Jarny. Therefore, before the arrival of General v. Schwartzkoppen there were, between the great road from Bruville and the road to Jarny, and also west of the latter, quite considerable hostile forces of all arms. Even though not all these troops were directly visible, yet since 2 o'clock Artillery and Infantry fire was kept up from Greyère Farm; that of the Artillery being directed against Mars la Tour from about the time of General v. Schwartzkoppen's arrival. Already before 2 o'clock Generals v. Barby and Count Brandenburg had fallen back on Mars la Tour in face of this fire (work of the General Staff, I. 590, 608).¹

That the reader may gain a coherent view of the further development of the French line of battle I notice:—After 4 o'clock till before 5 Cissey's whole Division was gradually moving into the firing-line; and first: east of the great road from Bruville, and upon it, the 57th Regiment; to the right rear of this the 78rd Regiment; these were later joined on the right (west) by the 20th Chasseurs and the 1st and 6th Regiments, the former in the 1st Line, the latter in the 2nd. At what hour the Artillery Reserve got into action I could not ascertain with certainty; I have the impression that it ensued about the time when we crossed the road Vionville—Mars la Tour, and were therefore already attacking (about a quarter-past 4 o'clock); for from that time forward the Artillery fire was materially stronger, and we felt by the explosions that a reinforcement must have arrived. Further, from the losses² that befell all the batteries it follows that the whole Artillery Reserve took part; only in

¹ [Apparently some clerical or typographical slip. The named pages of *Der deutsch-französische Krieg* (Berlin, Mittler and Son, 1874) do not seem to precisely bear this out as to time. Compare the relative passages of Major Clarke's Translation of that work (edition 1881, Clowes and Son, &c.), at pp. 390, 398; cf. however, p. 106, hereafter.—TRANSLATOR.] ² Dick, pp. 242 to 275.

the case of one, 7th/8th (Dick says 9th/8th), there are no figures.

Although on the German left wing (the station of General v. Schwartzkoppen ; see Sketch) one might not perhaps directly observe from half-past 3 o'clock what there was in the region about Greyère Farm, and what was going on west of the great road from Bruville, yet one did see: 1st, the whole Bruville ridge strongly occupied; 2nd, one heard shots fired continually from the neighbourhood of Greyère Farm, Artillery fire, indeed, by which towards 4 o'clock Mars la Tour was put in conflagration; 3rd, one had for some time observed high in the air a great cloud of dust north of Greyère Farm, hanging over this part of the country. The air was clear, pure, and light.

The great dust cloud was the first thing which on that day at all fixed our attention, more than the fire itself, and was already visible before we turned away from the place where the Brigade formed up, 1,000 metres south-west of Mars la Tour. It had been our real '*point de vue*.' As people are accustomed to follow the flight of a balloon, so we followed that stratum of dust, round which we moved in a semicircle. We discussed what it could mean; and my commanding officer, who had uncommonly sharp eyes, maintained that the great wall of dust was steadily moving from north-east to south-west. During our geometrical circling round it I noticed no interruption. As we approached General v. Schwartzkoppen's station, we could now clearly make out: 1st, that the wall of dust advanced; and 2nd, that its advance was to the south-west, exactly upon Greyère Farm; 3rd, but also that the Bruville heights were strongly occupied, and that therefore the cause of the dust cloud was still in operation. What was that cause? The movement of strong masses, which we ourselves, indeed, could not see. But the effect of the appearance was greater than any other I ever noticed in my military life; and as one had clearly perceptible before one's eyes the Bruville height lined with masses of troops, one might say to oneself that something of importance would presumably soon develop itself near Greyère Farm.

(g) Course of the Attack

Since 2 o'clock important reinforcements on the side of the adversary had been observed; while about Rezonville in the enemy's line an active movement was noticed (withdrawal of the IInd Corps and introduction of a Division of the IIIrd and of the Corps of the Guard), and a diminution of strength in the centre was not recognisable. On the German side at 2 o'clock it was known certainly, from prisoners, that we had to deal with the IInd and VIth Corps, and with the Corps of the Guard. The French fighting-line increased its extent to nearly double, up to a quarter past 3 o'clock—from St. Marcel to Greyère Farm, and hence on the German side one became convinced later that the whole Army of the Rhine stood before us. On our side the troops at possible disposal gradually amounted, up to late evening, to 2 Army Corps, 1 Division, and 2 Cavalry Divisions. The decampment of the adversary had been hindered. Flavigny, Vionville, Mars la Tour were in our hands. Only our left wing had temporarily evacuated the Bois de Tronville, because from 2 o'clock it had been outflanked by 2 new Army Corps (IIIrd and IVth).

Our condition had thus been critical between 2 and a quarter-past 3 o'clock; for at any moment one might have expected the adversary to break forward over the road Vionville—Mars la Tour. Only when these anxious hours were over did the 38th Brigade reach Mars la Tour; for the adversary had quitted the Bois de Tronville from a quarter-past 3 o'clock. Grenier's Division had, up to nearly a quarter-past 3 o'clock, pressed forward, with its left wing and some batteries, west of the Tronville thickets, till abreast of the south edge of their northern portion. Now, when the Artillery of the 20th Division under Colonel v. d. Goltz, which had hastened forward, came into action against those hostile forces, the latter fell back to the position, height 846—Greyère Farm. Colonel v. d. Goltz, from about half-past 3 o'clock, continued the combat from the spot where the hostile Artillery shortly before had stood, 600 metres north of the road Mars la Tour—Vionville. In the Tronville thickets were two battalions of the 79th, while the remaining portions of the

20th Division were forming up. The batteries of the 40th Brigade joined those of Colonel v. d. Goltz, so that from half-past 8 o'clock this officer had command west of the Tronville thickets of 24 guns. The appearance of these fresh forces in front, combined with the reports concerning the advance of German troops from Hannonville against the right flank, and the order of Marshal Bazaine to defend the position held, were the cause of General Ladmirault's defensive action. But a later offensive on the part of the French, so soon as they felt themselves strong enough for it, was not excluded from the case.

General v. Voigts-Rhetz intended on his part to take the offensive against the new forces of the enemy, and had given orders for this at half-past 8 o'clock. The General's idea of carrying out the attack was that the 20th Division should advance in front, the 38th Brigade against the enemy's right wing, while the 5th Cavalry Division should on the extreme left wing proceed according to circumstances. Now the officer commanding the 20th Division misunderstood this order; at any rate he did not act in accordance with it. Consequently the attack did not attain execution in the way intended, since of the 15½ battalions designed for the movement, 10—namely those of General v. Kraatz of the 20th Division—by a misunderstanding, retired almost at the same moment that General v. Schwartzkoppen, in accordance with the arrangement, had already launched the 38th Brigade.

Prince Frederic Charles had ridden from Pont à Mousson at 2 o'clock, and as early as 4 o'clock was at Vionville (26 kilometres). The Commander-in-Chief intended that his right wing should remain on the defensive, while with his left (Xth Army Corps) he should attack the heights of Bruville (work of the General Staff, p. 611, I.), and his plan was thus in keeping with the measures already introduced by General v. Voigts-Rhetz.

General v. Schwartzkoppen had received orders on his side to accompany by a flank stroke the frontal attack of the 20th Division. The method of executing it had been left to him. Only he must be mindful to co-operate with the 20th Division, wait therefore for its deployment, and keep well in

his eye the proceedings of the adversary. The General's position allowed both requirements to be met; and, though the crisis of the conflict just surmounted had not been a light one, yet at this time, towards 4 o'clock, there were no specially pressing circumstances before him; rather, a waiting demeanour was worn by the enemy. Since General v. Schwartzkoppen received the order for attack the circumstances on the adversary's side had considerably changed, though General v. Voigts-Rhetz could not perceive this by his own observation from Tronville, for the French right wing was meanwhile spread as far as the road to Jarny, and had advanced to Greyère Farm. Granted that General v. Schwartzkoppen from his station could not get a sufficiently precise insight into the strength and extent of the French right wing, yet it could hardly be that what is above mentioned respecting the measures on the antagonist's side entirely escaped him. And if he surveyed the great space from the road to Jarny as far as the Bois de Tronville, he must come to recognise that $5\frac{1}{2}$ battalions were not enough for an attack; and that, if he nevertheless intended it, he would probably himself be taken in flank while much too greatly extending his front. Under these circumstances a timely representation upon the matter to General v. Voigts-Rhetz would perhaps have determined him to a modification of his order. Such a report was not made. But besides—and this was worse—General v. Schwartzkoppen did not await the deployment of the 20th Division.

For the execution of the attack of the 38th Brigade, General v. Schwartzkoppen pointed out to the right wing (Ist, F./57th, 2 P. Companies) the north-west point of the Bois de Tronville (work of the General Staff, I. 605), but to the left he gave a direction due north (IIInd, Ist/16th), on Greyère Farm (work of the General Staff, I. 607). Thus it followed that, the 38th Brigade deploying by wings, F./16th and Ist/57th had to advance, between the two wings, in a north-easterly direction. When, then, the Brigade was disposed in this way the attack began without having particular knowledge of the extent and strength of the enemy's right wing: a thing that, as is well known, repeated itself in a greater degree two days later

at St. Privat; but before every attack these matters must be ascertained. Also, since to the two wings of the Brigade had been allotted objects of attack widely distant from each other, the one to north, the other to north-east, and the Brigade had formed up 1,000 metres south-east of Mars la Tour upon the whole breadth of deployment as then required and having its front towards Tronville, thus was unavoidable a scattering of the troops within the Brigade, unless beforehand the front were taken against Greyère Farm and the north-west corner of the Bois de Tronville. That was not done.

The measure of General v. Voigts-Rhetz in sending the 5th Cavalry Division into the neighbourhood of Ville sur Yron, to operate against the enemy's right wing during the intended attack of the 8 brigades, had probably its explanation rather in a consideration of higher kind, than from any adequate knowledge of the adversary's proceedings inferred from recent Reports from Barby's Brigade. Barby's Reports went to General Headquarters, and were probably not communicated to General v. Schwartzkoppen, at any rate not in due time. In judging the measures of this General that must be borne well in mind. To Barby's retiring movement about 8 o'clock General Count Brandenburg had conformed 'also' in the direction of Mars la Tour. The Cavalry was thus uninterruptedly in contact with the adversary from the time the latter issued from Doncourt. It saw well also, and reported well. From that time 2 hours elapsed before the attack of the 38th Brigade. But it seems that the correct laws and needful arrangements for an appropriate system of Reports, especially on the wings, had not as yet been observed. Thus, then, it is explicable that General v. Schwartzkoppen, who ought to be the best informed, and who naturally, as the senior officer on the spot, should receive the Reports—even if only in official transit—was actually unable to fulfil the part which in such conditions falls to the officer senior in rank upon the Tactical and Strategical wing. How important is the regulation of the Report system appears again in this instance among many.

Wanting, then, in cohesion with the troops of the Xth Army Corps that should come into action eastwards as was the

execution of the 38th Brigade's attack, that of its individual battalions was so too. From beginning to end I was on horseback right in the centre of the fighting-line, and I had a view on all sides till the smoke of the powder became so thick that IIInd/16th and Ist/16th vanished from my sight. I can therefore vouch for what I say.

The individual battalions pressed forward gradually, from left to right, in a northerly and north-easterly direction, while the two batteries supported the movement from their (second) position, north of Mars la Tour. Now since the battalions on the left wing, IIInd and Ist/16th, had the shortest distances to go, they got furthest to the north, crossed then the Bruville ravine, and kept this start to the end of the combat; and one may say that they, under Colonel v. Brixen, conducted a fight on their own account. Those on the right, F./57th, and 2 Companies/P. Xth, had to describe the largest curve; and if one take into account the 2,500 metres wheeling line reaching to the Tronville Wood, it is then comprehensible how that wing, despite the acceleration of its march, came into the fighting-line certainly half an hour later than the left. The supports of the two central battalions (12th, 9th/16th of the F./16th, and 4th, 3rd/57th of the Ist/57th) moved forward exactly abreast, while the skirmishers of 2nd/57th mixed with those of 10th/16th¹ (see Sketch III).

Up to the contour-line 780 the organisation of the Brigade from left to right was as follows:

First Line

5th/16th, 7th/16th, 3rd/16th, 2nd/16th, 11th/16th, 2 *Züge* 2nd/57th, 10th/16th, 1 *Zug* 2nd/57th,

150 metres {

Second Line

8th, 6th/16th,

4th, 1st/16th,

12th, 9th/16th,

4th, 3rd/57th.

¹ Hence it came that F./16th from Mariaville Farm only moved into its place when the 1st and 2nd Companies of the 57th had already, by General v. Schwartzkoppen's order, extended skirmishers south of the Chaussée Vionville-Mars la Tour. F./16th then pressed forward exactly between the left wing of the skirmishers of 1st/57th and the right of 2nd/57th, and remained in the general alignment, so that the connection of 1st/57th remained broken from the outset.

First Line

8 *Züge* 1st/57th as skirmishers up to the Bois de Tronville.

150 metres

Second Line

11th, 9th/57th, 12th, 10th/57th, 2 Companies/P. Xth.

From here and the glen north of Mars la Tour the organisation changed, as follows: one Line being formed almost everywhere, and the Second thrusting itself into the First, where it found room:—

First Line

5th/16th, 6th/16th,¹ 7th/16th, 8th/16th,² 4th/16th, 8rd/16th, 2nd/16th, 11th/16th, 1st/16th, 2 *Züge* 2nd/57th, 10th/16th, 1 *Zug* 2nd/57th, 12th, 9th/16th,³ 1 *Z.* 1st/57th, 11th, 9th/57th, 1 *Z.* 1st/57th, 12th, 10th/57th, 1 *Z.* 1st/57th.

200 metres south.

Second Line

4th/57th, 8rd/57th, 2 Companies/P. Xth.

¹ On the plans of the regimental Histories of the 16th and 57th the 5th and 6th Companies of the 16th are marked too far north, near the glen that runs from west to east. I contested this point already in the first edition of this book. And to-day I can say, after instituting further inquiries, it is wrong. For the 5th Chasseur-battalion of the French continuously held the angle at the point of junction of the two glens!

² It is doubtful which of the two companies, 7th or 8th, was to the right; and it is of no Tactical importance.

³ This statement agrees with that of the 16th Regiment, p. 271 of its History, but in reference to its Fusilier-battalion they diverge very much. Captain Ohly has confirmed my statement.

In the autumn of 1880 I learnt abroad of the approaching publication of the History of the 16th Regiment. Knowing that works of that sort have an official character, I sought an understanding with this Regiment, so that the specific statements I had reached, based upon thoroughgoing inquiries, might prevent fresh errors. It would have been presumptuous in me to say directly to the Corps this and that are incorrect. I therefore asked the Regimental Headquarters to answer several questions that were important to a Tactical work based on the

Up to the contour-line 780 the losses were not very great, and while we pressed forward from here further north we clearly observed, advancing southward, a portion of Grenier's Division. Lieutenant-Colonel v. Roell reckoned it at 6 battalions. It moved with great speed, doubling down the slope, and before we arrived 80–100 metres south of the ravine it gained its northern edge. Facing the hostile Infantry stood the greatest part of F./16th, 1st/57th, F./57th, 2 companies /P. Xth.

However IInd/16th and 1st/16th found the far side of the ravine unoccupied, for Cissey's Division was only then in the act of advancing between Greyère Farm and the great road from Bruville to Mars la Tour. I could clearly perceive its advance, from horseback (near F./16th and 1st/57th). The right wing and the centre of the Brigade were subjected to a heavy fire in tiers (1st from the north edge of the ravine, and 2nd from the height 846 to the road Bruville—Mars la Tour). The losses increased, and soon we, who had thought to outflank the enemy, were ourselves outflanked from Greyère Farm (Cissey's Division). Three hostile brigades in deployed lines moved against us at 5 o'clock; then there came, in addition, a half-brigade (of Cissey's Division) and 1 Chasseur-battalion (of Grenier's Division). The adversary, who till then was lying flat on the ground, and of whom nothing was visible but the peaks of the head-dresses pointing upwards, overwhelmed our detachments on the coverless surface with a devastating fire. 80–100 metres south of the ravine the line, from F./16th to the right, halted, and attempted to answer the fire. From that point the attack stopped. The men lay down on the ground; there too they found no protection; two-thirds of the officers had already been put out of action; the body, deprived of its soul, collapsed. Endurance lasted still for a time. Then the inevitable took place. The movement went—back!

event concerned. I remarked at the same time, that I had the intention of publishing that work in 1881. The Regimental Headquarters did not comply, but communicated to me the approaching publication of the History of the 16th Regiment; in this I should find the replies to my questions. Thus an understanding upon doubtful points was excluded.

The upshot is as follows :—

1st. The 5 battalions did not spring up as doughty stormers on the far side of the Mars la Tour ravine ; but of 20 companies only 8 (1st, 2nd, 3rd, 4th, 7th, 8th, 11th/16th, and 2nd/57th) reached its northern edge. The 16th, as described, had begun the fight sooner than the centre and right wing, and had also the shortest ways to go ; they did not come upon a field of action so prepared by the adversary as the others did, and they forestalled Cisse's Division on the northern edge of the ravine ; it was not till the Division moved up quickly at the double that these companies had to give way to the great superiority of force.

2nd. The whole line, with the exception of those 8 companies, pressed no further forward to the north than 80–100 metres south of the ravine.

3rd. Needle and Chassepot opposed to each other did not both work devastation. The devastation affected us alone.

4th. When we had already begun our retreat, the French got forward to distances of 50 and 80 metres from us ; simply because they, under the thick gunpowder smoke, broke forward upon us unawares ; and the Infantry of our side was too exhausted to be still able to double. Only on the left wing of the Brigade (1st and parts of IIInd/16th) the French mixed with our people at the bottom of the ravine, hence the 400 taken prisoners of the 16th Regiment.

5th. It was only now (upon the retreat) that the losses amounted to disorganisation ; the Chapter on Losses furnishes particulars hereon.

When the French lines had pressed forward to 150 metres north of the contour-line 780, the 1st Dragoons of the Guard appeared, and in whirling movement rode down the adverse Infantry. That Infantry rushed back, and, in doing so, masked the front of its own position, forgot to fire, or fired wildly at random, and threw away field-equipment and weapons. Along the line of 2,500 metres a general pause in the fight took place. Even the Artillery became entirely silent. The fight seemed at an end, and the brave troopers saved many a man of ours from hostile captivity.

Later sounded from the Tronville thickets the signal :

'General Advance.'¹ It came from the 20th Division. Some minutes later one noticed of the 38th Brigade two groups; whereof one stood in the angle of the Tronville thickets and the road Mars la Tour—Vionville, the other 500 metres east of Mars la Tour; the former, men of the 57th, under Major v. Medem; the latter, men of the 16th, under Lieutenant-Colonel Sannow. North of the road Mars la Tour—Vionville were six batteries engaged. Such is the course of this event.

The 38th Brigade had, before reaching the battlefield, traversed 37 kilometres in oppressive heat,² yet their powers were not spent till now.

At 2,500–2,000 metres (about from the road Mars la Tour—Vionville up to the line, height 846—Greyère Farm) one-third of the companies was extended as skirmishers.³ Lines of skirmishers, with one *Zug* as support, were the formation at first of the First Line. In the Second followed, as half-battalions, 8th, 6th/16th, 4th, 1st/16th, 12th, 9th/16th, 11th, 9th/57th, 12th, 10th/57th (as company columns abreast), and 4th/57th, 3rd/57th, 2 P./Xth, as individual company columns. When the First Line halted at 80–100 metres south of the ravine, the Second moved into it. Only 4th/57th and 3rd/57th, at an intimation from Lieutenant-Colonel v. Roell, remained lying down in close order 200 metres further south.⁴ At the last period of the fight, 12th, 9th/16th lay on the earth in close order, 11th, 9th/57th and 12th, 10th/57th stood in deployed lines in close order; 11th,

¹ It may have been from a quarter to 6 to 6 o'clock.

² The work of the General Staff states the length of the march at 42 kilometres.

³ General v. Schwartzkoppen rode with the troops up to the road from Mars la Tour, that is till they came under Infantry fire; saying repeatedly, 'Only skirmishers, gentlemen.'

⁴ These companies the Commanding Officer was unwilling to lose control over, anticipating as he said no good 'from the hunt,' and irregularity. Both companies sustained small losses (compare the Chapter on Losses, hereafter). In the History of the 57th Regiment, which in other matters has drawn thanks-worthy advantage from the first edition of this book, these two companies have been placed on the extreme right wing, near 1st/57th. That the author of that History could make mistake in the matter is all the more inexplicable to me, as he served with 4th/57th; and I have him still to-day before my eyes, as he fell in consequence of a grazing shot. But I saw both companies also in the retirement. If they had been where this History alleges they were, and besides

9th/57th delivered several volleys, from which the advance to further attack was made. This, after 20–30 metres met the large hostile bodies rushing towards it (skirmishers and columns mixed together in one line).

The Brigade had thus, upon one field of action, indeed of one character, employed very different formations: 'Groups of skirmishers in loose order, *Züge* in close order, company columns in close order, half-battalions in column and line.' This was a Tactical mistake from the moment of crossing the contour-line 780. From that time only skirmishers should have been used. But we did not then possess either the requisite knowledge as to the shooting performances of the enemy's weapon, nor had we the needful certainty in the conflict by masses of skirmishers.

The regiments of the Brigade fought abreast, and up to 80–100 metres south of the cross-ravine they traversed 1,400 metres under a massed hostile fire. According to the work of the General Staff, they lost 72 officers, 2,542 men, from a strength of 95 officers and 4,546 men with which they had gone into action. The specification of strength is about correct, the figures as to losses incorrect.¹ Also the advance did not take place by lying prostrate and running forward. Three battalions of the Brigade, F./16th, 1st/57th, and F./57th, advanced in the then favourite rapid step, without any pause at all, and only halted when fire and the adversary's attack dictated it. Hence the expression 'hunt' of Lieutenant-Colonel v. Roell; hence also the physical exhaustion, when the halt had to be made. Whether IIInd/16th and 1st/16th advanced by lying prostrate and springing

as half-battalion in company columns, their losses would have been three times as much, something like those of 12th, 10th/57th.

But it is to be added also, that according to the arrangement for battle which did subsist, these companies could only have reached those points by a diagonal movement, and that for a distance of about 1,000 metres over the most coverless part of the whole fighting-ground. I need say no more than that, to hear every practical man remark that it was impossible. But I saw the things clearly; and the small losses of 4th, 3rd/57th are further important proofs. Apart from the point of view of military history, mistakes of this kind are so regrettable, because they impede the discovery of correct doctrines and conclusions!

¹ Compare the Chapter on Losses, hereafter.

forward, I cannot decide. I was not throughout able to see them. But I hold this statement as one of the fairy-tales which have been spread abroad concerning that event, in history and in other ways. The fact that the 57th Regiment lost as prisoners but a few men, and those who had already been prisoners nearly all became free again, it owes to the 1st Regiment of Dragoons of the Guard. The 16th Regiment fared worse here, having to leave behind more than 300 men, mostly from the 2nd and 1st Battalions; because the attack of the Dragoons was here unable to execute any effective operation. From the right wing of 3rd/57th (the extreme limit of the Dragoons' attack to north and east) they wheeled to the left, galloping generally in a curve from 250 metres north of the contour-line 780 back round Mars la Tour. The material result of the attack was not adequate to the losses. Lieutenant v. Streit, of the 57th Regiment, who next morning walked over the enemy's position, assured me that north of the glen running from east to west there lay not ten Frenchmen's bodies. The Half-Division had remained without provisions the whole day.

III. RETROSPECT

OF the two attacks which have been elucidated on a basis of thorough investigations, the first one, in the present state of Tactics, can claim in the main nothing beyond historical interest. For the particulars of its course would be impracticable against an adversary armed with small-bore rifles.¹ And what formerly was possible in the Tactical leading of large bodies is excluded in the case of the rifles of the present day, with their grazing long-range fire and great penetrating power. The second of the attacks, on the other hand, is still to-day almost the only source from which, rightly used, we may come by practical laws for the Tactics of the future. But, to attain this, the event must be subjected in some degree to the analytic lens.

Despite difference in the general state of the fight, in numerical conditions, in weapons, and the unequal results of the attacks, both of them still offer several points of connection and phenomena that urge to instructive considerations.

The dissimilarities lie first of all in the object the adversary fought for. At the defence of the Briz Wood the object was, and could only consist in, covering a retreat already begun. But at Vionville (Mars la Tour) the French desired to hold the battlefield and to repel our attacks. The forces of the adversary at Probus were about equal to those of the assailant. At Mars la Tour they were far greater than ours.

The armament of the Saxon-Austrian Infantry was inferior to ours; that of the Artillery was equal, if not superior, to ours. But at Vionville (Mars la Tour) the firearm of the French Infantry was much better than that of the German, while the Artillery of the latter again excelled the French.

¹ In every place where small-bore rifles are mentioned the smokeless powder is tacitly assumed.

The attack on Probus—Bor succeeded. That on the Bruville heights led to the greatest Tactical overthrow which an assailant suffered in the whole campaign. The circumstances at Königgrätz and at Vionville were alike: 1st, in regard to the condition of *morale* of the Saxons and the French; 2nd, to their Tactical effectiveness; and 3rd, to the field of action. The position in the Briz Wood was indeed strengthened by fortification; but these arrangements did not render it more secure from assault than the other was by reason of the glen (ravine) often mentioned, which cut through the ground and ran in front of the French array. And if one reckon in also the obstacles on the field of action in the latter case, which lay under the enemy's Infantry fire (wire enclosures), the French position was even stronger than the Austrian.

The attack of the 14th Division on Probus—Bor differs from that of the 19th Half-Division on the heights of Bruville, before all things in regard to the preparatory measures, the forming up, the correct making of the onset, and clear communication of the objective. Both attacks, with respect to the leading of considerable bodies of troops under hostile fire, are instructive, as well for what was done as for what was neglected. The will to direct was the same on both occasions. The skill in direction was different.

I would not recognise as correct the view that guidance at Mars la Tour was more difficult than at Probus. It was only more restricted, that is, more limited in space. One might rather call that at Probus more difficult. For at this place leaders and troops were without experience of war, that is, practice in war; and I think that as that failed them they conducted the fight with the iron strictness, but also with the conscientiousness of a drill in peace time. At Mars la Tour, all the leaders, and many of the men also, possessed experience in war. Besides, the period of armed peace from 1866-70, and the thirst for war which the French exhibited, had made it necessary to study their method of combat, so that their principles of fighting (Tactics) were of possible knowledge beforehand. Evidence of this is furnished by verbal as well as written regulations made before the war. It cannot, then, be admitted that before the

collision we did not anticipate what awaited us, and what was required of the leaders. The leaders knew that on ground without cover, and in the devastating Infantry fire, unity of guidance must cease, and that the troops, once brought to the spot, would fall out of their hands; if this was certain, then also—under these conditions—no practical result was to be attained. If in such case one exposed oneself, to force a success—as was done—it meant certainly encountering the loss of the leaders, including the highest ones. It is well known that this came about. And of a great body of troops nothing might remain over but burnt-out slag, power both physical and psychical broken, without connections, without leaders, and at present disqualified for any further employment.

It is perverse to regard abstractedly the situation in the fight of individual bodies of troops. Frontal attacks, against an enemy well led, have no prospect of success unless a superiority of fire has been attained. At present more than ever the decision devolves upon the wings. And again for this the fighting of the Elbe Army on the 3rd of July, 1866, furnishes an example. Its advance must be blamed. For the statement in the work of the General Staff,¹ that it had been compelled to wind through a defile (Nechanitz) is a mistake. It would be entirely needless to cite the evidence on the point. But delayed as it once was for more than 2 hours, the excellent leading of the Elbe Army (14th and 15th Divisions) deserves recognition. The initiative of the subordinate leaders never exceeded the compass of the Brigade's fighting-space. And, so soon as a success was won, measures were first of all taken to ensure it before striking a further blow.² So we have here numerous measures, among which there was never a failure of unity and connection in the guidance. This might therefore be called the ideal of the Task method; yet a moment's reflection shows that modern conditions would require important modifications in it. Pro-

¹ Page 399, II., work of the General Staff concerning 1866.

² Gaining the passage of Nechanitz, capture of Nechanitz, of Lubno, occupation of the wood and hill-range of Popowitz, of the wood of Ober-Prim, of the villages of Neu- and Nieder-Prim, pheasantry of Jehlitz, Stezirek, Steinfeld, Ober-Prim, Probus, height of Probus, Briz Wood, and Bor Farmyard.

ceedings indeed so progressive, systematic, and cautious debarred the victors from great results; for there is no doubt that the whole of the 28th Brigade, after the Briz Wood was taken, could have advanced further upon Briza and Rosnitz, if the 16th Division, instead of making a great détour and therein sticking fast, had followed the 14th on the shortest roads by Probus—Rosnitz, and if the 15th had, as was also possible, moved off in the same direction. Then things would have come to a catastrophe for the Austrians on the battlefield. One of the chief causes why this did not happen was that General v. Herwarth did not in due time cause the necessary bridges to be built. But, even taking the situation as it was, the principal forces, 3 divisions of the Elbe Army, would have soon enough reached the line of retreat of the Austrians, if the officer commanding the 16th Division had resolutely followed in the direction of Probus. Then, the troops there and in the neighbourhood would certainly have joined it; for they felt themselves in *morale* and Tactics strong enough for that, and the state of the fight demanded it. This was well recognised in the 14th Division. However, a similarity appears here in the case of General v. Etzel to that of General v. Kraatz later at Vionville. But if one wish to recognise the connection of things, one must regardlessly discover their causes. Otherwise one acquires no history of war, one does not reach correct doctrines, one gains no advantage at all. Further, the entire Cavalry ought at 4 o'clock to have been near Charbusitz, which was also possible.

Before an enemy whom one has not overcome hitherto in any great battle, and whose military efficiency one holds in regard, cautious Tactics are explicable. Such Tactics required indeed the immediate presence of even the highest leaders at the decisive points. In this respect also the attack of the 14th Division is worthy to be taken as a pattern.

The military history of the coming time has taught how easily the modern fire fight becomes a combat of numerous companies, and even smaller detachments, which press forward under the influence rather of a bold than a sagacious initiative on the part of their officers. The injurious side of this individualised fight we have learnt to know only seldom, and only

in restricted measure. But the question gives rise to uneasiness : what must take place if defeat follow this individualised struggle ? The engagements at Vionville on the 16th of August, and at Loigny on the 2nd of December, 1870, might have answered this question, if an incomprehensible stupidity had not prevailed among the enemy.

IV. TACTICS AT PROBLUS—BOR ON THE 3RD OF JULY, 1866

ON the 3rd of July, 1866, is seen a whole division, upon a difficult fighting-ground, not for one moment, from beginning to end of the combat, falling away from its leader's control. All was regulated. And even what was left optional was again forthwith brought under the guidance. In the attack, long lines of skirmishers, supported by small bodies to rear of them, alternated with the column by the centre (Fusilier-battalion 57th, IInd and 1st Battalions 17th). At the pivot of the enemy's position, one battalion (F/56th) suffered losses that equal those of the year 1870 against French Imperial troops with breechloaders ; but, notwithstanding it was deprived of its leaders, it took by storm the obstinately defended place. As soon as the attack succeeded, thought was given to defending the point in question. For that purpose the irregular swarms were first of all put again into order. Everywhere the generals of division and brigade were at work in the most advanced line. There they gave orders in person, and urged the troops forward. In very short time the battalions were reassembled, and every cover was carefully used to avoid losses. Thus a whole division, at every instant during the different hours of a difficult attack, remained in the hands of one man. And he knew always where were the Tactical units (battalions). It was the ideal of a great attack movement, so fine that there may hardly have been any executed like it.

If control was kept over the several corps, each person in the military hierarchy at his own place, no less strictness was shown in following the second of the chief laws of Tactics, to keep the troops in movement as long as possible, and not employ them in fire action until fire promised some result. The appearance on the scene of the whole 14th Division was

indeed only possible by making such full use of time and circumstances precedent to the combat as was here done. The first condition for every Tactical success is, correct plan ; correct management ; drawing up the individual main bodies (brigades) in calm, outside the sphere of fire ; and, when the forming up has ensued, a resolute and regular onset to the attack. These preparations were not the smallest of the things that ensured success. And because on the 16th of August, 1870, in the pushing forward of the 38th Brigade, all this was insufficiently regarded, while smokeless powder and long-range rifles make substantially more difficult both plan, onset, and development, therefore is so high a value set on measures preparatory to the attack. Generals and General Staff had employed the morning of the 3rd of July to become acquainted with the fighting-ground. Certainly they had more time for it than on the 16th of August, 1870. Then, after the Tactical bodies were turned on to their paths, obedience was continually given to the weightiest law, upon which all Tactics rest, that of human nature. The march was made not up to the sphere of fire of the hostile Infantry, but right into it, without losing control of the troops, so that the first resting-pause in the attack of the 28th Brigade occurred about 250 metres in front of the enemy's abatis. To reach so far it was needful to conquer the resistance of two Saxon battalions on the edge of the height south of Probus ; and the Saxon Infantry laid stretched in rows on this spot gave evidence of the effect of our Infantry fire. The Probus height commanded the whole of the ground which the 28th Brigade must cross ; and, in front of the abatis of the Briz Wood, the coverless field of fire measured about 300 metres. The explanation of how it was possible to press so far forward without a pause lies in the armament of the adversary of that time, in the Tactical formations of the assailant, the irregular distribution of the adverse occupation (Fus. 57th, for instance, hardly encountered resistance, so that it seems the adversary here had already retired, while Ist/57th as well as Ist and IInd/17th found obstinate resistance still), and in the unity, speed and energy wherewith the movements were carried out.

Psychological

The great Frederick conquered the hosts of half Europe not only by reason of his great personal superiority as a soldier, but also because his Tactics, and the nature and consistency of his use of them, rested on a sound basis, knowledge of human nature. Where he alienated himself from this, as for example at Collin, his Grenadiers, despite the iron discipline, were blown away like the 88th Brigade at Mars la Tour. The great King and general was—a psychologist; and in this sphere he expressed himself with truthfulness no less unreserved than in all others. Hence his perpetual success! His host was already supported by that conscious military spirit which great commanders propagate. Still the King wrote in his private instruction to the generals, ‘the Prussian soldier is, on the average, indolent,’¹ that is, he does little or nothing of his own impulse, but he must be impelled. That nobody likes to die, and that natural egoism is perpetually directed towards the longest possible preservation of life, and avoidance of danger to life, this the King kept always in view. And that saying is still to-day probably correct of many of our people. If one attend to this, one reaches an approximately correct idea as to what may be expected of the man’s devotion, and what remains for discipline and the officers’ personal example to do. This substance must then indicate to us the forms in which we will turn the indolent individuals to good account. There is an anecdote, which, like many another, marks the lack of receptiveness of our troops; and I cite it because it teaches that in many cases fine words and lofty speeches reach the man’s mind only to glance off it. A commanding officer of the Pomeranian Cuirassier-regiment is said to have one day, in proud remembrance of the Regiment’s past, begun his address thus :—‘Cuirassiers, Hohenfriedberg Cuirassiers, &c.’ . . . The words sounded strange, and along the ranks of the armoured Cavalrymen was heard a whisper, ‘What are we? We are Pasewalk Cuirassiers!’

¹ The General Principles of War : Instruction of Frederick the Great after the second Silesian war.

Upon a great portion of our people only one thing, in general, makes an impression, that is, action ! Therefore the King gave honour to each brave deed, each bold resolve, directly for the purpose of spurring ambition, and of being able through the officers' energy and heroism (combined with iron discipline) to produce an immediate effect on the masses. The King's success in attack was based on the recognition that a stop in the attack movement is already equivalent to a failure of the attack. So he made no artificial pauses for rest and breathing, but sought to prevent them. And Tactics culminated in the nurture of that feeling of honour among the officers that is our strength, as well as in the development of their will-power.

That was their education. The moral effect of fire is as a rule more staggering than the material. This becomes still more of a truth than before with the modern small-bore rifles ; and particularly so with the new sorts of shot (a perfected shrapnel, detonating shot). And Tactics wherein the moral power of the leaders comes best to expression ought on simply theoretic grounds to be the best. Besides, with the linear tactics of Frederick the attack on decisive points was as bloody as at the time of Napoleon's column Tactics, and in the most recent past which is divided between the two. The great King's Tactics were based on discipline severe as that of the Romans, and his generals were heroes like the generals of ancient Rome. Movement and fire effect were intimately bound together. The soldier fired by word of command. The ranks were kept as closed as possible. Fire itself began only at short ranges (towards 200 paces), but then with a vehemence and rapidity before unknown. And the problem which the great King solved in his way, 'to get at the enemy with the greatest number of firearms, and then to shake him by means of fire directed and commanded,' is to-day still the endeavour of many Tacticians. Compare only the 'Mid-summer Night's Dream.'¹ But here is the characteristic of those days, that in the case of every decisive attack, great losses from the first were reckoned with ; and people set about to educate the will to be the first in the ranks of the enemy

¹ Berlin : E. S. Mittler and Son, 1887.

and the last to quit the spot. The bold spirit of attack of the Prussian host is the gift of the great King. We must cherish it, precisely in the case of the modern weapons. The Tactics of the great King reckoned with the weaknesses of human nature. Therefore they were sound, for that time and those conditions. We however pay no regard, or too little, to human egoism, and view the man as one portion of an excellent mechanism. And we imagine that he will work as certainly as that does, while one must, however, reckon with the uncertainties of human nature. If Meckel with his following represent the one extreme with impracticable demands on the preservation of the forms of 'shooting-machines' in close order, the latter are representatives of another extreme with impracticable demands on the moral constitution of the mass of the men, as the majority go. There, the 'shooting-machine' in close order is to be everything, that is, the officer; here, one makes claims on the man, which only a host of heroes can conform to, and one soothes oneself with the belief that Head would take the place of Soul, Intelligence that of Courage. But of all levers, the only one that acts perpetually is Egoism. With most men, in case of great danger, egoism forces the other powers into the background. And, if people are accustomed to regard the preservation of life as the most natural thing to strive for, while the general must always demand the greatest personal sacrifice, the risking of life, then this subsisting and remaining contradiction must cause us to lay stress on the cultivation of strength of soul, and intelligence; then one must always strive to preserve or regain leadership and command over the men, so that the leader may direct his own people, and his responsibility for fulfilment of his task may be possible. The conditions for this, however, namely, death-defying courage and heroism, will-power and energy, resolution and thorough culture of the mind, can exist in the necessary degree only among professional soldiers. They cannot be in country labourers; but they can in a corps of officers which, wheresoever, takes for its aim intelligence and strength of soul, as well as an unshakable sense of duty, and in which there burns a lofty ambition. The ambition I mean is that

of devotion to the good of the whole, to King, fatherland and people, to all those ideals which fill the breast of the man who has high cultivation, high moral excellence, and a noble conception of life. They first make a man of the officer, and place him on a higher level. These moral forces remain always the content of all sound Tactics; but they only develop themselves to beneficial effect when the individuals reach an age to comprehend what the word responsibility means. This forces one to reflection, to labour its very self; it leads to a proper apprehension of the calling and recognition of duty, to love of the particular aim; and it thoroughly inspirits men that are appointed for action, if they possess inner worth, faith, and trust. Weak natures, on the other hand, one sees as a rule shrink back from every responsibility; in their case, instead of giving scope and stimulus to their resolution, it does not make any appearance at all. Thus, in circles where the important thing is that the powers of the understanding must operate knowing what they are about, and indeed in presence of great dangers and great responsibility, the strengthening of the character should always be made the foundation of all beyond. And, although extraordinary strength of character is as a rule a hereditary gift, yet in the case of all well-disposed people it may, in some degree at least, be induced by rational training. The principal means for this are to present to the mind fine models, acts of love and self-sacrifice, to make ethic-moral principle the first consideration in the whole view of life and in the whole education, to exercise oneself in doing without things, and to renounce material enjoyments, to live in a self-contained *régime*, to acquire a taste for work and a delight in it, for this is the only lasting one of all pleasures on earth. The legitimate and proper egoism may also, in such a view of life, have a strong material side. And that is good. For every thing, if it is to be healthy, must have a moral and material content. Perception of duty and consciousness of responsibility are again together the principal means for stimulating the powers of the understanding; and one never works in earnest till one is conscious of responsibility. Responsibility teaches to think! But in acute thinking, if also continuous, consists the greatest

exertion that can be imposed on man. It does not weaken, it strengthens. For it becomes a requirement of the brain, which forces the material ingredient to follow it, even when the miserable body struggles against it. Responsibility leads also to the feeling of a proper shame. And the sense of shame is an extraordinary lever for overcoming weak moments. I have seen a kind of people that did not overcome these moments. And intercourse has all along led me to observe that those were men whose lives had no inward quality, or very little, but held their heads so much the higher for that, and were without the true feeling of shame. Want of education makes one presumptuous. Education makes one modest.

And if I personally look back to many a dangerous position I have found myself in, and by no means deny that they made my flesh creep, I have each time rejoiced in quiet at having overcome the weakness, and won a victory over the baseness which resides in every man. I may add, I have always won that victory, without wishing to assert that my nature was specially courageous. If in this matter I examine what it really was that always allowed me the victory over myself, I find it was in the main two powers: Understanding, through it Duty; and Responsibility, through it Shame. I have made a psychological study in my own case, to honestly take account in every situation how my heart was, whether I remained master of my powers of understanding, and so forth. I regarded this as an exercise, which itself had a charm for me; and made the discovery that it progresses only laboriously, that it has often to be begun over again, but that one only reaches the goal when the powers of the understanding have already been accustomed to work. I therefore esteem the 'keenness of youth,' though often its results are so fine, less than that of riper age, because in the case of the latter the powers of the understanding must be more developed. The keenness of youth and the will-power of women are related in many situations. However, sweeping theories are only too easily made game of by human nature. Still, age with its more developed powers of understanding should always be clear, too, as to their dictates, as to what is reasonable, so as not to destroy the buds of youth before their opening into

flower. I could wish, in riper age, to experience still one more war with murderous battles, merely to compare my own self of present years with the same in youth. I have not thought myself in any danger of being more than a good average; but I have seen numerous other officers above that standard, and some below it. And among the former have been some who roused my irrepressible admiration. However, I must add that many of the rank and file have also filled me with admiration, and these brave fellows I place, without more ado, higher than the best among the officers. I could not say of myself that I ever had a feeling of hate, or that ambition for reward has specially spurred me. But I have always found a great charm in understanding the situation, keeping eyes and ears open, observing my acquaintances of peace time, my own corps, the adversary, and so forth, in their demeanour, for man was and is always for me the most instructive thing. And I have found that he constantly changes more or less, even in the case of natures which in their foundation I would plainly call heroic.

Now, if I consider myself an average man, who nevertheless has always remained master of his powers of understanding in serious situations that thrilled the marrow, herein must proof indeed be found that in all natures which are not degenerate, such an average degree of moral force may be attained by a careful education and culture; and this in the case of both officers and men. But more even in that of the officers; and we should have a right to visit with the most relentless punishment every case where it does not show itself. Herein, however, there seems to have been a rather 'bad leniency.' Great victories inclined to clemency. Yet this fact has its dubious side, and may lead to evil consequences. In order to avoid noise and publicity, much has been hidden with the veil of kindness; but this is politic, not military! Even among exalted classes of mankind, the sense of shame must be brought to bear in no small measure upon their whole proceedings. The feeling of shame was a potent instrument in the rising of the year 1818; it then incited the officers themselves to the loftiest human performances: shame for defeats sustained, shame for lost position in the State, in

society, in intellectual existence. But the feeling of shame presupposes a contemporary actuality, and a definite relation to the same. If the contemporary actuality attain no knowledge of events that abash, all noble emotions in it must fail of efficacy; and it was, indeed, the perception of the need for this efficacy that determined the great Romans to their retributions. Again, if a member of a community has the quieting certitude that all remains within four walls, this may lead to blunting the feeling of shame, blunting the feeling of responsibility, and so on. Publicity, as well as everything else, has its drawbacks; but, since war is an act in which all passions and powers of the individual man publicly show themselves in their true essence, punishments, too, ought to be made as well known as rewards. The more so, as fear of punishment, where men are not degenerate, is a means much more operative than hope of reward.

I have observed that those who in my presence have been conscious of a weak moment, were ashamed of it, even though they at various other times had exemplified services as high as human nature can. I have become acquainted with others, who on that account flinched before me, avoided me, and could no longer look me straight in the eyes. Thus shame is always the lever; and full use must be made of it.

If a host have at its disposal only the refuse of the classes of the people, then the officer with his moral qualities is all, his men are really nothing in the fight but shooting-machines. But even under Frederick, if a bad predicament arose in the fight, these machines collapsed, and as a rule the battle was lost. For the individual parts of the disjointed machine ran so far that there was no bringing them under fire again. Of this Frederick himself has left evidences classic enough behind him. But, if a host unite in itself the whole strength of the people, as is to-day the case, then naturally the distance between officer and man becomes smaller, as regards all qualities, and nothing is any longer attained by the use of the stick and all forms which fulfilled their object in the past. Therefore, as to the officers, the higher respect for them must follow from their higher intellectual position; and to this position clear and distinct efforts must

be directed. But the most ideal rank and file in a people's host cannot abrogate the moral relation of officer to man, but only alter it. Therefore, wrong as is any wish of Tacticians to drag forward again Frederick's formations, or those of the attack of the 14th Division at Probus—Bor, which serves as a pattern in military history, thinking they see therein the only possibility of bringing up under guidance the forces that are necessary for the decision, it is just as wrong to renounce offhand every formation on the battle-field, and put the man entirely on his own resources, for then no guidance at all is possible, and most of the men do not get to the required range if they are left to themselves from the very beginning. The day is past for formations in close order in the execution of the combat, and there is probably no one to-day that still believes in their possibility. Every very serious fight must take the form of a combat by masses of skirmishers. Inquiry will only have to be made whether for the correct principle the correct means also have been taken. The combat by masses of skirmishers restricts of itself the influence of the leaders. The disorder which becomes thereby unavoidable threatens to abrogate it entirely. This must be known particularly by each officer, from the captain downwards. The evil cannot successfully be obviated. But rational means must be taken to check it; and these can only be founded on a reasonable fighting-method, on the moral education of the man, on the efficiency of the officers, and on the greatest number possible of efficient subaltern and non-commissioned officers. The present-day fighting-method demands more subaltern and non-commissioned officers than before. Yet precisely this salient point is unattainable with the armies of masses.

•

V. TACTICS AT MARS LA TOUR ON THE 16TH OF AUGUST, 1870

(a) *Psychological*

BEFORE we analyse the fight of the 88th Brigade on the 16th of August, I request the reader to fall back with me upon the description I have given of it.

The work is not very cheering ; but desirable, in order to reach correct ideas, and perhaps conclusions also that are no less apt. Besides, the circumstances which preceded the fight of the Brigade, also the physical and psychical condition of the men, ought to be weighed. For the power of tension of the soul is, with most men of humble type, conditioned by the physical state of the body.

The 88th Brigade had performed the distance from Bingen to Pont à Mousson in 10 days, and admirably sustained the exertions of the march, in spite of hot days. During it news of victory had come in from right and left, so that the men looked forward, full of confidence, to a collision with the enemy. I am no friend to the designation 'burn with eagerness for combat,' for that is simply a falsification of human nature, which prefers keeping its life to surrendering it. But in this case the nefarious declaration of war had wounded King and nation, so that only one judgment and one feeling prevailed about it, that the King had repelled the insolent presumption of the neighbour. And what then moved the German troops was ardent love of Fatherland, glowing patriotism, in short, passion. The individual therefore offered his powers willingly. And the brilliant performance in marching, as well as the admirable behaviour in the fight, are adapted to considerations of how far injured political pride is of value to the moral condition of the corps in combat.

The cause of the Commander-in-chief was that of the soldier, that of the people, that of the host. And with this fact there arose such a degree of the most intimate and passionate fusion as the psychology of war but seldom exhibits, and indeed in its happiest times. Nevertheless, the course of events teaches what passion can and what it cannot attain; and this should be a warning not to set upon passion too high expectations. The battalions of the 38th Brigade reached the fighting-ground of the 16th of August with an average strength of 900 men, a truly brilliant performance.¹ If one set against this the great number of exhausted and weakly men who fall out on marches in peace and war, the explanation of the fact is obvious: will-power was its cause; will-power of the individual, and thereby of the whole, overcame hardships and night-marches, deficient and irregular provisioning.

But a fight, with its thousandfold dangers, wherein the life of the individual is directly menaced, and everyone remains always under the impression of danger, demands a much higher degree of will-power. If on the march it show itself by tenacious endurance, it here calls for buoyancy and heroism. And the same man who marches till he drops, is often deaf to call and whistle, to order and command, even to the repeated and heroic example of the officer, when the question is to get him out from sheltering protection to advance across a fire-swept space. And the same non-commissioned officer who through long service enjoys the character of an efficient soldier, and has from another war already returned home with outward distinction for bravery, who ought to possess moral superiority, and is called to the honour of holding aloft in danger the symbol of fidelity and of all military virtues, lays himself down with the colour as soon as the officer is not watching or is no longer able to watch, and the sacred object only flutters over the open field when the cry 'Up the colour' brings back its bearer for some moments to his duty. Thus is man, and thus is also the

¹ According to the History of the 57th Regiment, the two battalions of the 57th counted 31 officers, 1,325 men, on going into battle (p. 88), which agrees with the figures I gave already in my first edition.

soldier. Fear of death changes most people entirely, and even natures of superior disposition may succumb to it.

He who leads troops must know human nature. And the officer who throws them into the fight must never overlook the fact that he may apply to only few people the rule by which he measures himself. He must also not be unmindful that will-power, devotion, spirit, and bravery do not always operate in the same degree within a man who is himself resolute. Power of the soul suffers loss through many appearances and feelings, the body's disposition and the spirit's mood. It is never to-day as yesterday, and it will to-morrow be different again from what it is to-day. The moment of resolve to die greatly and worthily, calmly and heroically, is that wherein man rises to the loftiest energy. It is no normal condition of the soul's life. In an inquiry concerning psychology in Tactics one cannot reckon with definite magnitudes; for magnanimity varies as much as man, and in him it is different every moment. The same act which I perform to-day resolutely and without hesitation finds me perhaps at another moment less prepared and ready. This is so even with the bulk of officers. And he who excels the measure is an unusual human being, he has flung humanity from him. He is great. Will fanatical, and will ethical, reach the same goal. The one is the riddance of humanity; the other is human greatness. Of the former we can make no use in a host, because of the endless dangers to discipline it contains within itself; the other is the most precious content of wholesome Tactics, but also the most sensitive.

But also in this sphere care has been taken that the trees should not grow into the sky.

The ideal of will-power as one constructs it at one's writing-table we can never attain. But I think the reader will not contradict me, when I say that the troops of the 38th Brigade entered the combat with all the noble and holy intentions which it is possible to develop in the mass. Still more, they were ripe for the psychological moment; yet this happy condition will remain an exception to the rule. He who will judge of this must himself have lived and suffered with the corps, must have made observation and injury into

it. All that can inspire and impel the soldier it had felt : ardent devotion to the motive of the war, ambition to equal the other troops that had already been victorious. One went to the combat with the feeling of emulation, to expiate a dishonour received ; and even the uncultivated man had a dark idea that the question was not of empty warrior's fame, but of a national combat for honour and the unity of the Fatherland. All this must be kept in view. Now, did these noble motives preserve the Brigade from giving way ? Did they, after it had given way, impel it still even to defence, to its own defence ? No ! So will-power too has a limit, on which the officer must reflect, because the limit must be different, according to motives, exertions, and impressions. The combat, at its climax, operates as an act of physical force, which differs from that of the past, in that nowadays fire is delivered at greater range, but also, for this reason, a greater number of missiles hit the mark in the same period. The effect of this combat is therefore morally and materially greater ; and this effect the officer must know, because he is thereby placed in a position to give rational orders as a leader.

I do not shrink from admitting that for months after Mars la Tour the fire there remained still on my nerves. Troops that have to go through anything of that kind are demoralised for a considerable time, not only the rank and file, officers too ; and I do not stand alone in this view. General Skobelev, to whom the ungrudging world will allow energy, and uncommon personal courage, expressed himself after the third battle of Plevna as follows : ' We have delivered the assault and taken the works of the adversary, but the attack cost us less than the retirement. The fearful fire has demoralised officers and men. It should be well considered whether the fruits of the combat can compensate such debilitation. Demoralisation infects even the best host.' Still, the losses of his troops did not reach those of the 38th Brigade at Mars la Tour. Serious men will not contradict me ; for they know themselves and human nature, and leniently judge its defects. Narrow conceit will oppose this ; but to try to convince it would mean carrying owls to Athens. Courage that rests

not on transcendental views soon expires. It is related that General Skobeleff, before he went to war, inquired of a Wise Woman, and she prophesied to him that he would safely surmount all dangers. It is said he wore a talisman after that, and put faith in it. That would not be the first instance of the kind. One of the finest and most heroic apparitions of military history, Trajan, did just the same. Adversaries may call it weak, superstitious, unworthy, and unchristian. And it may be so. But the Psyche of the warrior has nothing to do with the Word. Whence she takes her power is for the object indifferent, provided it only be there, and be moral.

(b) *Remarks on the Fighting-ground and on the Hostile Forces*

Of the fighting-line of the Xth and IIIrd Army Corps east of Mars la Tour nothing was noticed except 4 batteries, which were in action north of the road Mars la Tour—Vionville, and west of the Tronville thickets. But (from the slope 780 of the plan, already south of the road Vionville—Mars la Tour) one surveyed, from horseback, the French array, which stretched from the height 846 as far as Greyère Farm. Indeed, one made out from the body on the height 846 a considerable group of horsemen. It was General Ladmirault with his staff. To it were joined long lines right and left, that could be followed west to Greyère Farm. Between the Infantry, lines of Artillery were observable, which already at this time were directing a lively fire on Mars la Tour and the 4th Cuirassiers. An adequate estimate of the hostile strength was not possible, but it was beyond all doubt that we had a division straight before us. Besides, the sun was shining upon the whole length of the French array, which was still clear of gunpowder smoke and dust. So far as sight in general allows discernment, this was the case here. The watch showed 4 o'clock when the 38th Brigade set forward.¹

A general who, in peace time, attacked an adversary he was not well informed about, and who must later find by experience that he had run against a position impregnable to frontal attack, which was occupied in greatly superior strength

¹ As the 57th Regiment set itself in motion, I was asked, 'How late?' I answered aloud, 'It is 4 o'clock!'

by a defender also better armed than was the assailant, would on the spot be sent to his fathers. In war one cannot use this standard, because in actuality multifarious other circumstances may be of favourable influence, whereby the disadvantage the assailant is under from inferior numbers is outweighed. But here even such circumstances were not to be counted on. The enemy awaited us, rather, in deployed lines, behind covered positions ;¹ and so we, on our side, could not count on surprise. The position of the French was as strong as if Nature had wished to show in this example according to what points of view positions must in future be selected. A sloping coverless surface equal to the range of the rifle ; at medium range a meadow-ground between 3- and 400 paces broad, traversed by countless wire fences, and forming an obstruction to movement ; at short range a ravine which made the position almost impossible to storm. And of all this the leaders knew nothing, despite the fact that this part of the field of action had been in our hands all the morning ! If the example may be called typical for the defender's selection of a position whence the small-bore rifle could be used to best purpose, the same example may show how Cavalry should not act ; how orders should not be regulated ; how the system of reports should not be managed. Ample reconnaissances, correct and quick reports upon them, are all the more requisite in future ; and examples of neglect in the named directions at this place contain also valuable lessons on the point.

According to recent researches, Grenier's Division, on the 16th of August, before it joined the conflict, numbered 7,750 rifles. But when the 38th Brigade attacked the Division, the latter had no longer that strength. For it had earlier been engaged in offensive action, and had then been thrown back on to the Bruville ridge. Let us, notwithstanding, reckon with these figures. Of the Division there stood : the 98th Regiment and the 5th Chasseur-battalion at Greyère Farm, whence they kept up only a comparatively weak fire fight. The 38th Brigade then, with 4,400 rifles, fought against 7,750 rifles of the enemy.

Cissey's Division numbered 8,350 rifles. But it only came

¹ At least Grenier's Division.

into action when catastrophe was imminent. Against the 38th Brigade there turned, of Cissey's Division, the 57th Regiment, the 78rd, and part of the 20th Chasseur-battalion, say half, that is 4,175 rifles; the other 4,175 rifles came into action against Mars la Tour, and the German Artillery that was west of that place.

The relative strength of the two sides at the culmination of the conflict was thus 11,925 : 4,400 rifles. But the former were there from the beginning; the latter only came into operation successively and at a comparatively short range.

A further circumstance unfavourable to the Germans must be specially emphasised, namely, the extraordinary superiority in number of guns on the French side. And so far, again, the attack of the 38th Brigade differs essentially from others. Evidently the whole French Artillery of both Divisions, and the Reserve Artillery, were in action when the 38th Brigade crossed the road Vionville—Mars la Tour; that is, there were firing at it $36 + 12 + 12$ guns = 60; and also 2 mitrailleuse batteries; total 72. Against these 72 guns we could only put 36. The superiority of fire, not only of the French Infantry, but also of the enemy's Artillery, must under these circumstances have been considerable.

(c) *Forming Up*

When the Brigade formed up south-west of Mars la Tour it presented its flank so much to the adversary as to stand almost at right angles to his front; a fact however which cannot be properly explained in harmony with its first objective, Tronville. Now came the order to attack (push forward). The fighting-ground lay before us, 2,500 metres broad, and the regiment which had to get furthest out (the 57th and 2 companies of Pioneers X) would have to gain its position in the new front, after a great wheel to the left, before the general forward movement ought to be begun. As I have shown, it was not done.

In the movement the inevitable bad results were recognised, and, to diminish them, every battalion commander urged a quicker pace. It was no use. The fundamental

mistake could not be made good again by accelerated speed. The Brigade had not sufficiently attended to the point of view of 'space.' The battalions, even the companies, reached the adversary by degrees, and were from the left to the right wing repulsed one after the other, so that the 16th Regiment (IInd and Ist Battalions) had already come to a standstill when the Fusilier-battalion of the 57th (right wing of the Brigade) was only just reaching the line of skirmishers. If the numerical conditions for carrying this attack through were already quite inadequate, the way our force was used took away the last hope of success.

To the fault of not knowing the strength of the adversary, his position, and the fighting-ground, there was added thus an equally fatal transition to the fight without appropriate forming up.¹

(d) *Attack*

During the great wheel to the left, and at a distance from the adversary of 2,500 metres (south of the road Vionville—Mars la Tour), 2 companies of the 1st Battalion of the 57th, by order of the Division Commander, extended two-thirds of their men as skirmishers (1st and 2nd); and one of these companies² was guided by the Division Commander himself in the direction of the 16th Regiment, so that at this stage of the fight the distribution of the troops was that shown by Sketch III.

Already in the advance the troops had been thrust cross-wise out of their proper order. The attack itself was a hunt, so that the men broke down exhausted before the hostile array. With this I come to the ravine of Mars la Tour.

According to the statement of the General Staff, all 5 battalions crossed that ravine. I say, only 1st, 2nd, 3rd, 4th, 7th, 8th, 11th/16th, 2nd/57th. During our advance the

¹ At the review of the F./57th in February, 1871, on the drill-ground by the Cher at Tours, before General v. Voigts-Rhetz, General v. Schwartzkoppen was present, who shortly before had resumed command of the 19th Division. When he noticed me, he rode to me, and said in his jovial way something like this: 'Comrade, you were the Adjutant of the brave Lieutenant-Colonel v. Roell. That was an abortive affair at Mars la Tour. And who could suppose there was such a force against us?'

² 2nd/57th.

French, as I have shown, had thrown forward a strong Line against F./16th, 1st/57th, F./57th, 2 companies P./Xth, as far as the northern edge of the ravine. On its southern edge, at 80–100 metres distance from it, those 3½ battalions halted, and came not a step further forward. It is not enough to say it was so; one must prove it. In doing this, I ask pardon if personal experiences are therein presented, but they cannot be avoided, for they form the proofs. My object in doing so is not to put myself personally in the foreground. To avoid any possible suspicion of this, I did not in the first publication specify my name.¹

Till 150 metres north of the contour-line 780, Ohly's Half-Battalion (12th, 9th/16th) and 4th/57th, 3rd/57th moved exactly abreast. The latter threw themselves down here on Lieutenant-Colonel v. Roell's signal. The former continued its march, by Lieutenant-Colonel Sannow's order, which, according to a statement in the History of the 16th, was delivered by the adjutant, Lieutenant v. Hövel. I was, at the most, 30 metres from the right flank of 12th, 9th/16th. At this moment Vicefeldwebel Thiel, leader of one *Zug* of 2nd/57th, came from the left to Lieutenant-Colonel v. Roell and made the following report: 'I most respectfully report that my *Zug* no longer follows me. It is lying down. I have repeatedly rushed forward. It has been no good.' Lieutenant-Colonel v. Roell, a very brisk nature, turned to me with the words, 'These fellows!' and gave the order shortly, 'Ride back with the *Zug* leader. You will find me with Lieutenant v. Warendorff' (1st/57th). I came to the *Zug*, and the brave *Zug* leader, a hero in the finest sense of the word, waving his sword and crying out 'Forward,' succeeded by his exertions in getting some non-commissioned officers and men from the ground. Most of the remaining men lay on the earth dead or wounded, as in the ranks where they stood. Among them were several whom I had drilled in 1866 and 67 as recruits, and whom I knew well. They had already found the brave soldier's lot.² To the left rear the remainder attached them-

¹ Various reasons have in the interim led me to put my name on the title-page.

² This company lost 3 officers, 90 men, though it was entirely extended.

selves alongside Ohly's Half-Battalion, and pressed forward to the outermost line. There fell the *Zug* leader, Vicefeldwebel Thiel, as well as two non-commissioned officers that I knew. Then, just in rear of the right wing of Ohly's Half-Battalion, I again met Lieutenant-Colonel v. Roell. Just then to the right, 11th, 9th/57th formed up, and fired two or three volleys. Lieutenant-Colonel v. Roell remarked: 'Well, Warendorff (1st/57th) will be pleased!' (He thought that company would get the fire from the rear.) Riding straight forward, he turned to me, asking, 'Is that Lieutenant-Colonel Sannow?' I answered, 'Yes.' Then Lieutenant-Colonel v. Roell said: 'I am glad. Some order must come into this business. F./57th is shooting my first company in the back. My second is quite rent asunder by the 16th. If only Bernewitz (commander of 3rd/57th) keeps a good look-out with the colour. It is indeed an infernal fire.'

Lieutenant-Colonel v. Roell made other remarks still. I leave them out because they have less to do with the matter, but are of a personal nature.

Thus we came to F./16th. The picture that presented itself was as follows: Lieutenant-Colonel Sannow had caused Ohly's Half-Battalion to lie down behind the hedge that has several times been mentioned. He himself used also that cover. On the flank (to the right) lay his adjutant (Lieutenant v. Hövel), severely wounded, and both their horses shot. In the centre of 12th, 9th/16th was, halted, Captain Ohly on horseback, the colour beside him. He had a rifle in his hand, encouraged the men, and repeatedly fired from horseback. Skirmishers lay in front and on both flanks of this Half-Battalion; to the left, those of the 10th Company 16th, and 2nd/57th; to the right, those of 1st/57th. The Half-Battalion itself was in close order. From the front of the column few shots were fired; but the Half-Battalion did not keep up a regular fire fight. I have never seen an officer so calm and brave as Captain Ohly, the commander of 12th/16th, here was. This picture remains indelible before my mind. His keen voice sounded through the fearful roll of the hostile Infantry fire: 'At them, lads!' 'There they come; look alive!' Then again: 'The colour up!' In the end he dashed forward, to carry all with him.

In vain. There were too many dead and wounded.¹ As Lieutenant-Colonel v. Roell stopped his horse before Lieutenant-Colonel Sannow, the latter said: 'Roell, do dismount.' He did so. Immediately afterwards the animal was hit in the chest, it reared high up, jumped once or twice, and collapsed. Then Lieutenant-Colonel v. Roell knelt by Lieutenant-Colonel Sannow, and the latter said: 'Here we have the only cover. As long as the fire is as fierce as this we cannot get forward. We must wait till they run out of ammunition.'

Meanwhile I heard Captain Ohly: 'There they come; look alive!'

A few minutes later Lieutenant v. Wolzogen, adjutant of 1st/16th, came to Lieutenant-Colonel Sannow. His grey horse was bleeding from different wounds. He himself was unhurt, and preserved an heroic calm.² The purport of his report was: 'My commanding officer is wounded; we are repulsed (1st/16th); Colonel v. Brixen is dead.'

Hardly had this Adjutant spoken the words when the adversary burst forward from all sides,³ with '*En avant, en avant! Courage, courage!*' Lieutenant-Colonel Sannow gave the order: 'Back into the hollow; assemble there'; Lieutenant-Colonel v. Roell: 'Warendorff (1st/57th), this way!'⁴ (That officer meanwhile gave way towards the Bois de Tron-

¹ This Half-Battalion lost 8 officers and towards 210 men.

² Of all mounted officers who reached the devastating zone of fire, only three remained unhurt: Captain Ohly, Lieutenants v. Wolzogen and Bernuth, all of the 16th Regiment. Their horses, however, received several hits.

³ F./16th and 1st/57th may have held out in rear and to the flank of the hedge 20 to 25 minutes.

⁴ On this part of the field of action, then, not a man was north of the ravine of Mars la Tour. After the statement respecting the matter had appeared in the work of the General Staff, I went to see Captain Ohly in Cologne, and then expressed my wonder as to who could have given that report. Captain Ohly's remark was in these words: 'Where I and my Half-Battalion were you know best. Indeed you were by.' The fable of the drummer who, after the victory at Belle-Alliance, was put on horseback to frighten the flying enemy, has kept alive to our days. Olleck, *Life of General Reyher*, speaks of one only. Delbrück, *Life of General Gneisenau*, speaks of several, notwithstanding that in the *History of the 2nd Dragoon Regiment*, which appeared some years before the last work, this statement, generally disseminated as it is, is proved to be incorrect. To the damage of history, the attack of the 38th Brigade has already become a fable of similar sort. I should be unwilling to help in keeping it up.

ville.) Then: 'Bring back my adjutant.' It was his last word. A shot pierced his brave heart. He sank down without a sound.

Very delicate, ailing in the abdomen and the nerves, the weak frame of his body was governed by a rare will-power. His heart was full of high emotions. Clear understanding and admirable power of judgment distinguished him. One thought followed close upon another; his spirit was never at rest. He was a father to the corps. His disposition was that of a genuine Prussian officer. Honour, duty, devotion, and benevolence were his guides. Human infirmities, which are as a rule condemned with hardness and cruelty, found always in him a lenient judge.

His nights were mostly sleepless. In the field he seldom took anything but a moderate draught of wine and a cup of coffee.

He loved to incite younger officers to reflection; and shunned no contradiction that was presented after consideration and in becoming form. The impression produced was, indeed, as if he intentionally challenged contradiction, in order to give new directions to conversation, and to become acquainted with men. He did know them too, and really studied them. He had a distinct presentiment of his death. On the march to the battlefield he said to me: 'I shall soon have occasion to put my peace-time example to the proof. Yet, no; I shall not survive it.' Then he was silent. After a pause he drew out his cigar-case. 'We will divide them,' said he; 'perhaps it is the last thing I shall give you. The conflict will be a bloody one, a very bloody one. Remember me when I am no more, and when you afterwards talk about it in beautiful Hanover.' Then he fell into a brooding silence. It was only in the fight that his mind regained its buoyancy.

I will relate something further. In Pont à Mousson we lived in a family of consideration; and the lady of the house had a remarkable knowledge of the condition of the French host. At supper there arose, in consequence, a lively conversation. We talked about the commanders, the hosts, and so on; then everyone retired. At night, as I was just going to bed, there was a knock at my door. 'Do not do so,' said

the Lieutenant-Colonel, coming in. 'It is quiet and calm outside, and the din of war is silent; besides there is a magnificent starlight sky. We will make use of it, and walk about a little among the slumbering streets.' The conversation centred in the decision of the war. In the market-place Lieutenant-Colonel v. Roell stood still before the Mairie, and said vivaciously: 'We shall defeat the Imperial hosts. The Napoleonic throne will collapse, and Paris fall. The people are sick and over-excited. But then they will rise. Remember the Duke of Brunswick. Remember Napoleon I. A man of that sort will spring up now also. The name of the modern dictator will perhaps be: Léon Gambetta!' Hardly had the echo died away when a signal startled the quiet camp. It was Napoleon's day, the 15th of August, and we moved off into a provisional position, because reports had come in, according to which the French might intend on the 15th to take the offensive.

Here I must for a moment go into other particulars, for they are instructive. As I shall show in the Chapter 'Losses,' our decrease in numbers up to this point was great indeed, but not so great that we were absolutely incapable of a longer resistance. Why did we not offer it? Because we were, in the fullest sense, surprised; so much so, that the corps, which was already for the most part deprived of officers, lost its head. So, psychological causes, surprise and alarm, with their consequences, were partly the reason of the misfortune. The course of affairs was, that the offensive movements, led on from both sides, burst upon each other at the critical point, and at the critical moment, so that at particular places the two adversaries literally ran into one another.

Each of the adversaries had simultaneously executed a great wheel to the left: the French round the summit 846, the Germans round Mars la Tour. In this state of things it was natural that our right wing should hit upon that part of the enemy which had already deployed during our advance; or, rather, the part which awaited us; while our left and the adversary's right met in the offensive.

But while we, up to this, were unable to do any damage, either material or moral, to the adversary, the character of his

position, on different levels, allowed him to make thorough use of his firearms, in the fullest sense, and at the same time to employ, in offence, a portion of his forces. By this we suffered materially and morally. The fire, instead of becoming weaker, increased more and more. It came nearer and nearer. The gunpowder smoke became impenetrable to sight. Unobserved there stood close before us a force greatly outnumbering ours. Had the French made no halt 80 to 100 metres south of the cross-stream, and had they acted instead of despoiling our dead and wounded men and horses, then it would have been all over with the Brigade, and history would have some day related: 'To this place five brave Prussian battalions pressed on; none of them returned.' It would have been the most becoming inscription on their monument, at once on the field of honour and in the book of warlike history.

I was now led back by a Fusilier of the 16th Regiment and a Musketeer of the 1st/57th, and was for some time near Lieutenant-Colonel Sannow. After he had turned off to the east, Lieutenant Hilken of the F./57th came up. He had by the bridle the horse of Captain Scholten (16th Regiment), who had fallen. He said to me: 'Will you not mount him?' I answered, 'I cannot, indeed I am wounded.' He went on: 'Now Steinmetz¹ will have enough, I should think; what nonsense this is! Thank God the French are at least sending no Cavalry after us.'

When he was gone some steps away a Fusilier (12th/57th) whom I knew, called Opderbeck, passed me. He had a shot through the left arm or the left hand, which he held towards me, crying out with pain. I said sharply to him something like: 'Do not cry out so.' Opderbeck thereon took the direction of Mars la Tour, certainly on purpose; as I, indeed, generally remarked that the men had taken good view of the ground, for those that were without leaders went back to the place they had come from.² Just after this my two men were hit. They fell, and we remained on the ground.

¹ It was a good deal thought at that time that the battle was led by General Steinmetz, to some extent as a continuation of that on the 14th of August. And at first he was given credit for 'taking the bull by the horns.'

² Opderbeck had been a cadet with me. Later, as an officer of Artillery, he

The French had made a halt in our abandoned position (80–100 metres south of the ravine);¹ I know not whether they did this to let their rear Lines close up, which may have become separated by crossing the steep glen. It was not till some time later that Grenier's Division marched over us and away; first one line of skirmishers, then a second, and then battalions in line. The first line of skirmishers was firing vigorously. In the second all was confusion.

Everyone seemed to wish to inspirit himself with *Courage, courage, en avant*; no one concerned himself with the adversary, but with his horses and men that remained lying. This was the moment when the 1st Dragoons of the Guard delivered their attack.

(e) *Retreat*

I cannot state how long the French remained south of the ravine, for when such events as these take place time generally flies. But it is essential to emphasise that the French Infantry neither penetrated to Mars la Tour, which was already in flames from the commencement of the battle, nor got further east of the place than 150 metres north of the contour-line 780. General v. Voigts-Rhetz, who had observed the misfortune of the 38th Brigade, had thereon given orders to the Brigade of Dragoons of the Guard to

had done a foolish trick that cost him his rank, and on the outbreak of the war he had reported himself as a volunteer with the 57th Regiment. In this difficult position he always behaved towards me with much tact, and was for the men a very enlivening element, on account of his indestructible gaiety; he sustained also all the exertions of the march, and so forth, as if in play, and yet he did not make exactly a robust impression. Opderbeck was quickly restored, but on the 28th of November, at Beaune, he was for the second time wounded in the same arm, so severely that it was amputated in consequence. For his brave conduct he was again made an officer, and is now Bürgermeister of Lüdenscheid.

¹ Here Lieutenant v. Hövel, adjutant of the F./16th, who lay about 200 metres north of me, was taken up and carried away. He was brought to General Ladmirault, who asked him to which army belonged the detachment fighting him. Hövel answered, to that of the Crown Prince, which roused visible astonishment. It is possible that the statement had a determining influence on the General's measures. Lieutenant v. Hövel told me this when we were both, later, under treatment at Bonn.

interpose; however, of them there was on the spot only the 1st Regiment of Dragoons of the Guard. This Regiment rode on, wheeling easterly about Mars la Tour. The enemy's Infantry lost all conduct, the lines falling into confusion, but did remain substantially where it was,¹ now, as before, busying itself with clearing the battlefield, and with taking back prisoners, wounded and unwounded. The enemy's Infantry fire ceased altogether for a short space of time; and it might, indeed, have been practicable to assemble in order all portions of the Brigade and lead them back; at least one now saw how different men of the rank and file exerted themselves to bring off their wounded comrades. A little man of 2nd/57th who, with another, was leading a wounded man, took me up with the words, 'See, lad, take this one alone! there lies our adjutant; I'll take hold of him.' The good fellow, to whom perhaps I owe my life, was called Dienemer, and lived at Solingen, where later (1873-74) I often saw him again, when I was adjutant in Gräfrath. But a fateful circumstance occurred: an adjutant galloped along the Brigade from the left to the right wing, crying with a loud voice, 'Retreat to Thiaucourt.'² I raised myself to throw a last look over the open field. Fearful misery around me; and added to that, this order; could I think otherwise than that all was lost? Both regiments were deprived of almost all officers. Some of the men later took the direction of Tronville, principally under Lieutenant-Colonel Sannow; most of them, without officers, wandered back along the road towards Thiaucourt, and they did not rejoin their colours till noon the next day. This is an example of what mischievous effect may be produced by 'delivery of orders' in this way.

¹ The contrary statement, p. 86 of the History of the 57th, is wrong.

² It was the Brigade Adjutant. In the manuscript of my winter work of 1872-73, this is noted down in the margin by the hand of Colonel Arnold, doubtless after verifying the correctness of my statement. The Brigade Adjutant was the late Colonel v. Kalbacher, who died a short time ago as Commander of the 74th Regiment. General v. Schwartzkoppen had given the order for this retreat, not General v. Wedell. Lieutenant v. Bernuth I. delivered it. When General v. Voigts-Rhetz received knowledge of it he stopped the order. The assembly was now to take place in the direction of Tronville; but it was already too late to call back in time all the rank and file that had no leaders.

When General v. Wedell received the order, instead of this being communicated quietly to Colonel v. Cranach and Major v. Medem, both of whom were easily to be found, and then seeking out some other officers, for which there would have been plenty of time, the adjutant cried out repeatedly, 'Retreat to Thiaucourt,' but none of the commanders received the order! At this moment the remains of the Brigade were really no longer anything but shadows, or anything but slag.

The same hurry which ruled at the deployment for attack, ruled also upon the retreat; and matters did not improve till the troops were south of the contour-line 780. Here, over the dreadful field, covered with bodies of men and horses, under an Artillery fire that had again risen to the greatest intensity, rode at a foot pace down the fighting-line Lieutenant Neumeister, of the Staff of the Xth Army Corps, halting now and then and giving orders. A hero in strength of character, this officer deserves the highest praise for his faithfulness to duty and his calmness. He was a principal means of turning chaos into order. His merit is imperishable, like my thanks. 'Comrade,' said he to me, 'let them take you there; there is a dressing-station there.' It was south of Mars la Tour. 'Whoever is not wounded, into the village,' and he pointed to Tronville; 'whoever is wounded, go there,' it was Puxieux. After picking out the effectives, he left the place, where he established for himself the finest memorial.

His calm demeanour instilled some fresh confidence; a hope that everything was not lost, indeed, rose in our hearts. Tears of joy burst from our eyes. How alive to every emotion is the warrior's heart at such a moment! The agonised soul, the mind of enthusiastic and confident men terribly disappointed, how it thinks, feels and hopes! The knowledge of such a defeat, how fearfully it oppresses! One looks beyond the range of sight. One would know how things are to left and to right. One carries with one a single idea. Has it been fulfilled, and brought us success? Defeat before us. Uncertainty around us. In this most dreadful of all pains, one quits the place of conflict. The comforting news, 'that the general state of affairs was not unfavourable,' did

not reach us. Away we went to the valleys at home, conquered, shot to pieces, unsatisfied.

The retreat of the 38th Brigade forms the most awful drama of the great war. It had lost 53 per cent. of its strength,¹ wherein the proportion of killed to wounded was as 8 : 4. Strong men collapsed inanimate. The scorching heat, the previous extraordinary march, and the equally extraordinary attack, had consumed the last powers; and various as was the disposition, equally various was the demeanour of these warriors under so dreadful a disappointment. I saw men cry like children, others collapse without a sound; in most the need of water thrust back all other impulses; the body demanded its right. 'Water,' 'water,' this was nearly the only thing I understood from these shadow-pictures. The enemy's lead rushed like hail in among the poor remains; yet they moved at slow pace, the head bent in weariness, the features distorted and obliterated under the lime dust that had settled on the faces dripping with sweat. Over-tension had reached the highest degree; the man was receptive for nothing more. He was touched no longer by lofty or common things. He no longer knew his acquaintances or his superiors. Thus the same men moved over the wide field, who but a short time before had been singing gay marching songs. A few active squadrons, and not a man would have escaped! He who has ever with understanding gazed at the features of such men's faces, knows how fearfully they impress themselves, for they recall the expression of madness, mad from bodily over-exertion and fearful psychical impressions. And it seemed that madmen were actually there. Through the shadow-pictures of the Infantry single riders were galloping in the direction of Tronville, mighty figures on tall horses, the sword still ever forward in the first position, the gasping horse gripped convulsively between the thighs, the face red and dripping with sweat. They were Cuirassiers (4th). What will they do? No one knows; for

According to the work of the General Staff, p. 626, I., 60 per cent! The grounds of my statement are the figures of the chapter 'Losses,' including the prisoners. The latter are also comprised in the above computation of the work of the General Staff.

they do not themselves know. They plainly think they are still in the charge!

'Where have you your officers?' was the question their comrades of the batteries in action asked the men passing them. 'We have none left,' was the sad reply. Here and there indeed was one; and so the field, steeped in blood, saw still now, after all the misery, forms of heroic spirit. First must be named Colonel v. Cranach, who, riding up to the relics of the 1st/57th, took the colour from its exhausted bearer and brought it into safety.¹ With the colour of the F./57th in their hands, already several bearers of it had been severely wounded, or had fallen, when Lieutenant v. Streit saw, about 25 metres behind him, the collapse with it of its last bearer (Lance-Corporal Dorn). There were French skirmishers only a few metres from Dorn; and now a race began between them and Streit for the banner. But the young officer was the quicker. He seizes the colour. From all sides rings the cry, *Vive l'Empereur*; everywhere are heard the enemy's bands of music. Gaiety there; listless men here. The sounds of the music cut deep into the heart. A devastating fire sweeps over the field. But the young officer has no other thought than the rescue of the colour. Individual Frenchmen rush up from behind him; others send their shot after him. None of them hits. The lead seems to honour virtue, and the powers of this hero do not flag. Panting, he drags the colour out of the region of fire, and at last finds safety for it with 1st/57th.² Too great exertions had been required of the corps. Exhaustion physical and psychical was the end; and a chance was the rescuer of its honour! If a gracious fate had not held sway over it, curse, disgrace, and ignominy would have rested on the number, and hardly anyone would have had the courage to write its vindication. The men of this corps performed their task as brave soldiers; and military history could hardly contain an example to place side by

¹ Prince Frederick Charles, who heard of this, had the intention of causing this scene to be painted. So far as I know, the preparations for this were already made, when he suddenly died. Thus the 57th Regiment missed the great honour of becoming the match to Keith at Hochkirch.

² According to a written communication of Lieutenant v. Streit.

side with this, considered all in all. Indeed, if right lessons be deduced from the event, then the sacrifices were not made in vain.

Another young officer of the F./57th, Lieutenant de Rège, had remained unhurt in the conflict. The men were wandering about singly over the wide battlefield; he manfully seizes then a riderless horse that is going quickly by, and promptly sits in the saddle. Then he raises high his sword, and assembles the destitute men on the road from Mars la Tour to Vionville. Soon there is together a body of 50-60 men. Fronting towards the position that had been vainly assaulted the brave men stand in rank and file. Tears well from their eyes. Here it is the young officer who shows what strength of mind performs. 'Men,' says he to them, 'hold up your heads; we are not conquered, but only repulsed. The fortune of war is changeable. To-day we have got some hard knocks. Next time we shall pay back in full those fellows over there.' Then he gives the order, About turn, and the party marches out of the region of fire.

Whoever has been in a conflict murderous like this, where under fire almost every second man fell, will estimate what moral force and confidence in one's own efficiency are requisite for such conduct, at a moment when nothing remained of a Brigade beyond shadowy figures. This Psyche is needed by an army that wishes to conquer. I will, besides, allege of the men that I did not observe one case where one of them had thrown away his rifle or anything else. Hardly did I hear a wounded man moan or lament. The well-trained soldier indeed preserves, as it seems, a certain greatness of soul in the most dreadful misfortune.

In the darkness some fugitives of the 98th Brigade got to the camp at St. Hilaire; where, as I before said, there had remained behind IIInd/57th, with some Dragoons of the Guard, and the escort for the Staff of the Xth Army Corps to guard the waggons of the 19th Division, of the Brigade of Dragoons of the Guard, as well as of the General Headquarters of the Xth Army Corps.

Towards half-past 10 o'clock on the evening of the 16th the column began its march to Thiancourt in the following

attalion,¹ with the
 the Guard, then the
 between 3 and 4 o'clock
 reached the deserted and
 tendanturrath of the
 ant the order to move
 of August. Upon this
 St. Hilaire, to report to
 received, whereby he found
 o'clock, fast asleep on both
 Its commanding officer had
 sections from another quarter.
 k they decamped for Tronville.
 of the Xth Army Corps saw
 bers, tears burst from his eyes.
 turn on Thiaucourt was made in
 n able to establish. Possibly the
 s of the 16th of August may have
 r to retreat. But if the order pro-
 leaders, then also the state of affairs

the 38th Brigade was south-east of
 tion counted more than 800 men.

his description is as follows :

stormers did not rise up 100 and 25 paces
 my, on the far side of the ravine, but they
 distance 80-100 metres south of it, F./16th,
 57th, 2 P. Companies; Ist/16th, and 7th
 well as 11th/16th and 2nd/57th, alone came
 ward. Proof: The first three battalions I did
 t of from beginning to end. I was, up to the
 nted, and I could see, and look over; and I rode
 way from F./57th to Ist/16th (according to my
)² by order of my fallen commanding officer, who
 ot lose his 2nd Company. Further, in November
 walked down the battlefield, whereby I found that the
 graves agreed exactly with these statements. I fixed

According to a communication in a letter from him (Lieutenant Kropp).
 Voting of the troops on Sketch III.

the extreme line of the 16th and 57th Regiments by bodies, number-buttons, sword-scabbards, and so on. One of the largest graves lay close to south of the quickset hedge,¹ behind which 8 companies had sought cover.² The hedge was still remaining in the autumn of 1876.

2nd. This distance was not travelled by rushes; decidedly not in the case of the Battalions F./16th, 1st/57th, F./57th and 2 P. Companies. The advance of the IInd and 1st/16th is said to have proceeded by rushes, according to Major Meissner's statement (*M.-W.-Bl.* 1891); but I consider it improbable, because the advance by rushes was not yet practised at that time; and this kind of thing cannot be improvised. The whole space was traversed in the rapid pace; and, on getting to 100 metres south of the ravine, the movement stopped. The men lay down. No god would have been able to lead them forward again. He who nevertheless considers it possible leaves out of account what was the Musketeer's moral force, under this fire, on this coverless plateau, and in presence of such losses and complete physical exhaustion. Even devotion and self-sacrifice have a limit.

3rd. The terrible effect of Chassepot and needle was not mutual on the far side (north) of the ravine. But the efficacy was solely on the French side. For (a) we were not at all where we should have been; (b) During the whole advance the two Regiments expended only few cartridges. The proposition (a) will certainly meet no further opposition in military history; on the proposition (b) particular amplifications will follow immediately. Although these only rest on statements of those who participated, yet in this connection too the sense of my amplifications will be incontestable, namely that the 38th Brigade did not really reach fire fight

¹ Sketch III.

² To-day one can remark nothing more of the large graves that were formerly on the field of action of the 38th Brigade. It is French territory; and the French Government has had the bodies disinterred and buried afresh in a large churchyard situated at Mars la Tour. There rest, on a bare slope, 4,000 warriors. Local studies in reference to this can no more be instituted therefore since that time. In connection with the matter I will not leave unremarked that a grand memorial has been set up by the French Government in that churchyard; certainly a rather objectionable one, for it seems not to be there for the honour and fame of their fallen warriors, but as a revenge memorial.

at all, therefore could only inflict unsubstantial losses on the enemy. But since these were very considerable, the French must have suffered them principally from another quarter, namely, from the German Artillery and the 79th.

(f) *Losses*

The losses on the German side amounted to :

(a) With the 16th Regiment

(b) With the 57th Regiment

Killed		Wounded		Prisoners		Com- panies	Killed		Wounded		Prisoners			
Officers	Men	Officers	Men	Officers	Men		Officers	Men	Officers	Men	Officers	Men		
Ist Battalion						1	356	1st	1	19	3	51	1	26
220								2nd	1	32	2	58		
								3rd	1	14	2	42		
								4th	—	10	3	41		
IIInd Battalion :								5th						
								6th						
123								7th						
								8th						
F. Battalion :								9th	—	19	3	37		
								10th	1	48	2	82		
183								11th	—	44	2	48		
								12th	2	44	1	64		
27	526	21	787	1	356		6	230	18	423	1	26		
48 officers, 1,313 men						24 officers, 653 men. ²								
Besides, 1 officer, 423 men missing, of whom 1 officer, 356 men were taken prisoners ; statements which agree with those in the work of the General Staff. Total loss : 48 officers, 1,736 men.														

¹ According to the work of the General Staff, 18 men.

² According to the regimental records. The work of the General Staff states the losses of the 57th Regiment as follows.

6	366	17	422	—	18
23 officers, 806 men.					

(c) With the 2nd and 3rd Companies P. Nr. X. : 1 officer, 8 men ;

(d) With the 1st Foot Division of the Hanoverian Regiment of Field Artillery Nr. X. : 44 men, 40 horses ;

(e) With the 1st Regiment of Guard Dragoons : 14 officers, 82 men, 204 horses.¹

On the French side :

1st. Grenier's Division

98th Regiment : 1 officer, 10 men ; 5th Chasseurs : 1 officer, 20 men. Against these troops fought 5th and 6th/16th ; the latter lost together 6 officers, 127 men. So the conflict was here least bloody.

18th Regiment : 6 officers, 91 men killed and wounded.

48rd Regiment : 5 officers, 180 men killed, wounded and missing.

64th Regiment : 1 officer, 28 men.

Artillery : 14 men.

Altogether, 14 officers, 343 men. Its firing-line reached from the great road from Bruville to about the Bois de Tronville.

The 18th and 48rd Regiments were cut to pieces by the 1st Guard Dragoons, and fired on in rear from the Bois de Tronville (79th). So the losses of these regiments of Grenier's Division would be explicable. The greatest effect at this time will have been that wrought by the 79th, who were able to fire into the mass as it poured wildly back, without being itself fired on. Let it further be remarked that the losses of the 18th and 48rd Regiments, which made their appearance in Grenier's offensive movement towards the road Mars la Tour—Vionville before the arrival of the 38th Brigade, are comprised in the above figures ; or, in other words, the chief losses of these Regiments ensued south of the ravine.

¹ H. v. Rohr I. in the History of the 1st Regiment of Guard Dragoons, page 134, states the losses as follows : 15 officers, 126 men, 246 horses.

2nd. Cissey's Division

1st Regiment : 16 officers, 400 men.

6th Regiment : 8 officers, 17 men.

57th Regiment : 28 officers, 279 men (97 killed, 177 wounded, 5 missing).

78rd Regiment : 18 officers, 347 men (killed, wounded and missing).

20th Chasseurs : 5 officers, 68 men (killed and wounded).

Artillery : 20 officers, 6 men.

Altogether, 85 officers, 1,117 men.

Who may have inflicted these losses upon it? From the interposition of Cissey's Division the battle was, indeed, here properly at an end! The 38th Brigade ran against the 13th and 43rd Regiments in front, Regiments which suffered comparatively little. So here needle and Chassepot cannot have had a fearful mutual effect. The 57th and 78rd French Regiments did not interpose till the fighting-strength of the 38th Brigade was as good as done. Moreover, they clutched the remains of it on the left flank; but even the French 57th did not suffer specially great loss.

3rd. Artillery Reserve

Battery 6/8	.	.	.	—	1 man
„ 7/8	.	.	.	—	?
„ 5/17	.	.	.	1 officer,	4 men
„ 6/17	.	.	.	2 officers,	6 „
„ 11/1	.	.	.	—	5 „
„ 12/1	.	.	.	—	8 „
<hr/>					
3 officers,					24 men

Also, 4th. Legrand's Cavalry Division

2nd Hussars	.	.	.	23 officers,	80 men
7th „	.	.	.	9 „	58 „
3rd Dragoons	.	.	.	18 „	105 „
<hr/>					
45 officers,					288 men

Thus the whole of the enemy's IVth Army Corps would have lost, according to French authorities :

Grenier's Division . . .	14	officers,	343	men
Cissey's „ . . .	85	„	1,117	„
Artillery Reserve . . .	3	„	24	„
Legrand's Cavalry Division	45	„	238	„
<hr/>				
147 officers, 1,722 men				

against the figure hitherto of 200 officers, 2,258 men.

Herewith it should be taken into account that the estimates of the individual corps were made according to very different points of view. Some state only killed and wounded ; others the missing also ; and others, again, name only the sum-total '*hors de combat*.' To go more closely into these figures would lead too far, and I must leave the reader to decide how far they may have been attributable to the 38th Brigade after my unfolding of how the French firing-line was formed.

(g) *Things Supplementary to the Report of the General Staff in respect to Country*

The description of country does not suffice. And what harmful effect such inaccuracies have already produced may appear from the fact that in the Tactical examples of Colonel v. Lettow,¹ which are designed for instruction in the military schools, the attack of the 38th Brigade is put forward as a movement over open country. It was much more, although as far as to the contour-line 780, IInd, Ist, F./16th, and Ist/57th found some cover, F./57th and 2/P. Companies found less. For only the two great obstacles to movement (wire-fences and ravine), in combination with the scarcity of cover, gave to the fighting-ground its character.

The land about Mars la Tour is much parcelled out. The lots were at that time shut off by wire-fences, as were also the meadows by the stream which runs in a bend round the northern side of Mars la Tour. The wires had to be taken down with fascine-cutters under hostile fire ; whereby inter-

¹ V. Lettow-Vorbeck, *Taktische Beispiele*.

ruptions, delays and losses arose. Since the general movement was from south to north, we contented ourselves with taking down the wires that ran athwart; and as, later, the 1st Regiment of Dragoons of the Guard moved forward south about Mars la Tour to the attack on the hostile Infantry, it encountered the wires running lengthways that still remained up. It had to jump them. This circumstance is mentioned in the case of the Dragoons; not in that of the Infantry. The fences did not end till at the contour-line 780.

2nd. Further, it was proper that mention should be made of the hedge on the plateau 780, 80–100 metres south of the ravine. This hedge, because it gave the only cover, was the natural aim of our march, and of the adversary's fire. As a matter of fact, about $\frac{1}{4}$ th of the Brigade lay in the neighbourhood of it.¹

¹ Plan 5 B of the work of the General Staff exhibits the positions of the troops on both sides under the designation 'in the 5th hour of the afternoon.' In that plan, as well as in the one enclosed in the History of the 1st Dragoons of the Guard, the lines of the attack of our Infantry are drawn up to north of the stream that crosses in front of the French position. That is incorrect. Also, on the plan 5 B of the work of the General Staff, as well as on the plan of the battle of Mars la Tour of the 16th's History, the ride of the 1st Regiment of Dragoons of the Guard is incorrectly entered; also the 4th Cuirassier-regiment seems to be incorrectly noted in. The 1st and 3rd Squadrons are found once south-east of Tronville; the other time the 3rd and 4th, west of the Bois de Tronville. Then Legrand's Cavalry Division, in the Information on Strength, Annexed Paper I., page 11, I., is entered with 16 squadrons, while on the plan 5 B it counts 18.

On plan 5 B of the work of the General Staff the line of troops entered for the 38th Brigade is quite incorrect. (Compare Sketch III.) The 16th Regiment in its History goes still further; it has entered the whole 38th Brigade, with exception of 5th/16th, north of the ravine. The state of that case I have proved.

VI. AIMS OF THE FRENCH AND GERMAN GENERALSHIP

THE enemy, marching off, had halted in order to repel the German attack, intending then to resume the march required by the general situation of the French army.¹ It is unquestioned that a capable general might have attained a Tactical success. The IVth Army Corps of the French had only to move forward from half-past 5 o'clock, and to strike the direction of Tronville; victory must then accrue to it. For thenceforward there was in front of it not one other battalion fit for conflict, while the adversary had at his disposal more than 15,000 men. The situation of the Germans would temporarily have been bad. But it is very questionable whether such a victory would have procured for the French a decisive result, in view of the position of our Corps XIIth, IXth, VIIIth, VIIth, and Guard. That however would not properly be the Marshal's aim; but after easing his mind from 5 o'clock in the afternoon on the 16th, he had to attempt a retirement by all available roads to the interior. It is also indisputable that he might have done so (up to midday on the 17th), for till 12 o'clock noon on the 17th the Germans were in no condition to attack him afresh. By that time Bazaine might have gained a start of 30 kilometres, and whether he would effect the junction with MacMahon must be proved by the marching capacity of his host. However badly informed was Marshal Bazaine, yet he must indeed comprehend that if he were victorious on the 16th, and did not move away with all speed, he would certainly very soon be attacked by superior numbers.

¹ Whether this was still Marshal Bazaine's intention in the afternoon is a question that may remain unanswered. The generals in command, according to the result of inquiry, had no other plan. Ladmirault's behaviour can only thus be understood.

For south of Metz the Germans, advancing on a broad front, had nothing else in front of them. This Strategic position one must keep in view in order to judge the mode of action. Now Bazaine had been put to a bloody battle. His disposition had been traversed, and the result of the battle determined him to place himself with the fortress of Metz in support.

If it was the business of the French side to conquer, that is, to recapture the battlefield of the 16th, and regain the road Vionville—Mars la Tour, then it was the problem of the Germans to prevent the adversary from doing so, and for the following days to put in readiness a numerical superiority that should gain Tactical success by conflict. How that should be done the behaviour of the adversary alone could prescribe. By a simple defence the object could not have been attained, but only by way of attack. However, the question was, so to apportion the attacks that you did not thereby become too weak to defend what you won. This was done in the case of the 5th and 6th Divisions. Certainly from 4 o'clock the circumstances here were so far more favourable, that after that no offensive movement against them came to a head. In fighting, one generally proceeds correctly in assuming the adversary's method of action to be such as one would use in his place. His aim had to be a Tactical victory on his right wing; that of the Germans to prevent it. If we quite exhausted ourselves in face of him, we should make his work the easier; if we remained merely on the defensive, we should not keep him busy enough. On the German side, then, we had to act, and indeed employ an attack method, taking account however of the weakness of our own force. It was not done. The 20th Division did not attack at all; and the 98th Brigade was annihilated at the decisive Strategic point of the battlefield.

The order for the attack of the Xth Army Corps was adequate to the circumstances. The execution was a matter for its subordinate eyes, that had to see for it. But, with the weak forces at disposal, it was pretty obvious that to expel the adversary from the height 846 to Greyère Farm was impossible.

VII. HOW OUGHT THE ATTACK OF THE 38TH BRIGADE TO HAVE BEEN PLANNED ?

1st. The order should say : The Brigade attacks ; Line of direction, summit 846 and Greyère Farm ; Northern limit of the attack, contour-line 780. Connection with the Tronville thickets and the 79th, which advanced to this point.

2nd. The moment of attack is determined by the advance of the 20th Division.

3rd. Execution :

(a) 2/P. Companies occupy Mars la Tour and prepare the place for defence.

(b) Opening out of the Brigade, and wheeling to the left.

(c) The Brigade Commander halts north of Mars la Tour.

(d) Deployment for the fight, and breaking up into skirmishers on the road Mars la Tour—Vionville ; clearing the field of obstacles, advance as far as contour-line 780 ; halt. Distribution of the troops from West to East :

On the Height 795—

5th/16th, 6th/16th and a Battery,

then 7th/16th, 8th/16th, 1st/16th, 2nd/16th, 3rd/16th,

4th/16th

Bois de

1st/57th, 2nd/57th, 3rd/57th, 9th/57th, 10th/57th, 11th/57th, Tronville

4th/57th,

12th/57th.

From the contour-line 780 south to the contour-line 780 north of the stream is, on the average, 500 metres. The range was too great for our rifle of that time, and firing could not be carried out with any success. If the French were not tempted out to the south, so that one could better get hold of them, there still ever remained the possibility of keeping up a careful fire, wherein one would have had small losses to deplore while attaining the object. In reality the

losses up to this point were comparatively small. They did not become great till the slope was reached.

(e) A battery takes up a position north of Mars la Tour.

IInd, Ist/16th and Ist/57th had a covered approach; circumstances were less favourable in the case of F./57th. Thus skirmishers only should have been thrown forward over this open surface; otherwise the conduct of the fight must here fall to the Artillery.¹

(f) F./16th reserve in Mars la Tour.

It was possible to make good all these arrangements, and the Brigade Commander could direct and supervise them. If the adversary did not come on, then Ist/57th could be pushed forward towards the hedge 100 metres south of the stream, and Ist/16th be sent round, under cover in the glen, to the same distance west round the contour-line 780. This arrangement too and guidance it was possible for the Brigade to supply, not more. For, so soon as the Infantry surmounted the plateau, transmission of orders became impracticable, guidance stopped. It was absolutely necessary the Brigade Commander should keep back a reserve of the Infantry; since for that purpose the fighting-force of the 1st Dragoons of the Guard was too small and special.

It was really possible for these Battalions, tolerably covered, to hold the space even against great superiority. Indeed the same troops furnished proof of it against greater superiority at Beaune la Roland, when the bones of the best of them were bleaching on the field of Mars la Tour, the memory of this day still sticking closely by the remainder and certainly not increasing their strength of mind. The companies in support should have been brought on close to the skirmishers, and then, with the plateau as a field of fire in front, further events might have been awaited with confidence. In this way a decision was not to be attained. And it ought not to be sought for; the business of the troops was rather to hold out, and to maintain themselves. In that case there would have been standing there 5½ battalions and a fortified village, where was indeed a field of corpses without soldiers. If the attack of

¹ As is known, 24 guns under Colonel v. d. Goltz stood here. Compare page 104.

the Xth Army Corps, on this part of the field of action, had been thus carried out it would in plan, execution, and results, surely have been more adequate to the general situation than now, when the left wing of the exhausted host was without any support, and without the Infantry, whose presence up to the end of the battle had to be reckoned upon.

All these measures would be also still practicable with the smokeless powder.

VIII. TACTICAL REFLECTIONS

RARELY will it happen that a task like that at Mars la Tour falls to a brigade of $5\frac{1}{2}$ battalions. The instances are still rarer which afford opportunity, as this does, to undertake reflections upon the adequacy of Tactical formations of this or that kind used in the attack, and to draw deductions from the phenomena. One thing, however, no power on earth, no sophism, can wipe out of history. The 38th Brigade carried out the attack without pause till it mixed with the enemy, who had double its number of guns, and more than double of rifles. In the process it followed exactly the direction prescribed by the Commander of the Division, and remained in the framework of the battle as an inserted Brigade, on the space allotted to it. Whatever may be said against particular things, it performed that which failed everywhere else against the Imperial Army, a mass attack over open country, certainly with antiquated formations. I have a lively recollection of the words spoken to the assembled officers by Colonel v. Cranach, during the days of mobilisation of 1870, when he impressed upon them the training of the companies. Among other things, it was said: 'The French will not attack, but receive us in long lines. They will let us run up, and will only then advance. They have given up their attack Tactics, and shifted the centre of gravity to fire Tactics. Their weapon directs them to do so. Therefore you must industriously practise a lively and energetic advance, so that we may somewhat compensate the inferiority of our rifle by speed in our movements.'¹ This hint had more in it of

¹ The military attaché then in Paris, Lieutenant-Colonel Count v. Waldersee, had, under date the 18th of July 1870, rendered to King William I. a complete report in writing on the method of fighting of the French army, which was reprinted and sent to the troops. All that Count v. Waldersee foretold,

importance than anyone at all, perhaps the speaker himself, at that time surmised. And we were soon to become acquainted with its correctness. Already before the war of 1870, the view was dominant in the German host that our company column Tactics of those days were no longer applicable in face of the fire of the Chassepots. The Declaration of War fell within the time when new formations were being sought after; and the Infantry on the whole went forth with the feeling that its firearm was inferior, and the attack unpractised. There was a conviction that at long ranges we should receive an effective Infantry fire; and one had to be prepared to cross that zone without returning the fire, while sustaining considerable losses. Yet, let the firearms be ever so much improved, one thing is certain: the assailant who will overcome the defender, and set himself in his place, must press forward, and, indeed, as far as that range from which he may expect the highest result from his fire; that is, to 600 metres and less, according as the conditions for attaining the required result make it seem Tactically correct. The 'How' to press forward and the 'How' to conduct close combat have changed. The essence remains. Infantry long-range fire was in the first place systematically practised by the French, and came into use in the war of 1870. The French Infantry had therein attained also a high degree of training and certainty. Now the French had not selected beforehand the battlefield of the 16th of August. Rather, they were, against their will, forced to fight. That it admirably corresponded to the operation of the rifle, at most points of importance, was a chance, not a fact previously reckoned for. The recognition of the advantages offered for long-range fire by the position from the summit 846 to Greyère Farm, and the good use that was immediately made of it, redound accordingly to the honour of the French leadership; and the attack of the 38th Brigade gives us intimations as to whether it be possible to cross, in future, such a zone of fire without being disabled. Now the questions arise: '1st. Was it mass fire with which the Brigade was received, first by Grenier's

particularly as to Infantry Tactics, made its appearance; but time no longer allowed an alteration of the Tactics of attack.

deployed Division, and then by Cisse's Division,¹ which formed up later? 2nd. Would an increase of it in relation to the number of rifles at work be possible? 3rd. Can one expect a better guidance of fire, and a heavier and more effective fire from the small-bore rifles of to-day? 4th. Was the assailant already "under cover" at long ranges? 5th. Is a mass fire successful at still longer ranges than here?'

To 1, 2, 3, 4, I answer, Yes; to 5, No!

If one wish to make clear by one example the operation of mass fire at long range, one must imagine the assailant to be under the most unfavourable conditions. I have developed the statement that the employment of the 38th Brigade was unsuitable, but still this attack is the most instructive of the new Tactics.

1st. When the 38th Brigade deployed for the attack at 4 o'clock in the afternoon, the whole front from the height 846 to Greyère Farm (close on 2,500 metres) was occupied with all arms. Grenier's Division was in deployed lines, in two tiers, one behind the other (heights 780 and 846). The former was crowned with thick swarms of skirmishers (2 Regiments, the 13th and 64th), the latter with the remaining portions of the Infantry and Artillery of the Division. From both the firing was unceasing, and already as we reached the road Vionville—Mars la Tour we received at once with the Artillery fire that of Infantry also. On the road fell several men, and the leader of 4th/57th, Premier Lieutenant v. Borecke, was wounded here. In the firing one distinguished at first the rapid firing of the skirmishers and the volley firing of the troops in close order. Up to the contour-line 780, IInd, Ist, F./16th, and Ist/57th found cover in the meadow-ground; meanwhile the fire did not slacken.

2nd. The front of 2,500 metres was occupied with 2 Divisions, of which the whole of one, only half of the other,

¹ According to my observations, comparisons, and examinations this Division did not attack in very large bodies until the contour-line 780 was crossed by us. Till then the enemy's fire from Greyère Farm was restricted to the 98th Regiment, the 5th Chasseur-battalion, numerous Artillery, and apparently 2 Mitrailleuse Batteries, whose presence could be ascertained from the peculiar crackling roll.

deployed and fired,¹ that is, with 11,925 rifles ; between them there were in action 72 guns, including 12 mitrailleuses. If one leave out of account Legrand's Cavalry Division, then the result is an occupation, in the proportion 5 men to the metre, of a defensive position of 2,500 metres.

3rd. It is possible there may be a heavier mass fire at long range, one better directed, and, by reason of a more flattened trajectory and greater penetrating power and accuracy, a more effective one than at that time. Nevertheless, no pause occurred during the whole period, and the fire remained equally heavy up to the time when the French Infantry burst forward ; only it was perceptible how the volley firing became less regular, and towards the end changed to an irregular, rapid firing. The latter phenomenon might, as a rule, make its appearance.

4th. From the crossing of the road Vionville—Mars la Tour the fire of the adversary was fed uninterruptedly. The distance from here to the contour-line 780 (north of the ravine) amounts to 1,500 metres ; to the height 846, 2,500. Thus it was mass fire at long range, according to modern ideas, and the assailant was at 1,500–2,000 metres 'under cover.'

5th. At long ranges, a mass fire, even with the modern firearms, is not to be recommended. Here come in general points of view : 1st. The whole field of fire was capable of being swept, not counting the meadow-grounds north about Mars la Tour (IInd, 1st, F./16th, 1st/57th) ; for the rest, as if selected for an effective mass fire at long ranges. 2nd. The 38th Brigade traversed from 28–2,500 metres of swept space ; IInd and 1st/16th, 1,600 metres ; F./16th, 1st/57th, and F./57th, and 2/P. Companies, 1,400 metres.

This together results in an attack with great inferiority in number, with inferior armament, also under conditions of ground and in a general state of the fight which have not existed in others.

Withal we thought to outflank the enemy, and were ourselves outflanked, as if rolled up gradually from left to right.

¹ General Cisse, in 1875, said in the Chamber that his whole Division had interposed. Whether he thereby meant its fire fight or its later advance is not clear.

(a) Tactical Formations Employed

So far as it has been possible to establish the matter they were as follows:—

At 2,500 metres

IInd/16th. Company columns.

Ist/16th. Company columns (3rd, 2nd); behind them as half-battalion, 4th, 1st.

F./16th. Company columns (11th, 10th); behind them as half-battalion, 12th, 9th.

Ist/57th. Extension of whole companies (1st, 2nd) as skirmishers; behind them 4th, 3rd/57th, as half-battalion; from 1,500 metres forward, company columns.

F./57th. Column by the centre. 100 metres south of the road Mars la Tour—Vionville, change into half-battalions 11th, 9th, and 12th, 10th. (With this Battalion, the leaders of 9th and 12th were premier lieutenants, those of the 10th and 11th companies, captains. The aim of bringing each half-battalion under a company commander decided the Battalion Commander on the formation 11th, 9th/57th, 12th, 10th/57th.)

2nd, 3rd, P./Xth, at 1,500 metres, company columns.

Advance on one front, the two Regiments abreast. At the halt before the hostile position¹ absorption of 8th/16th; 4th/16th; 12th; 9th/16th; 11th, 9th/57th; 12th; 10th/57th into the first line.

Half of all the companies of the Brigade had extended their *Züge* as skirmishers. In close order, during the whole fight, remained 12th; 9th/16th; 4th/57th; 3rd/57th; 11th, 9th/57th;² 12th; 10th/57th; 2nd, 3rd, P./Xth.

¹ Compare Sketch III.

² The whole front of the F./57th was already earlier covered by the skirmishers of Ist/57th, who reached to the Bois de Tronville. According to the statement of Lieutenant Schreiber, the then adjutant, the two half-battalions of F./57th moved into these in line. During the whole fight they threw out no skirmishers; a case which hardly could have existed, at least under such circumstances, and therefore needs explanation. The Battalion Commander wished to bring the Battalion as quickly as possible up to the adversary. By

(b) Duration of the Attack

I take for granted that 1,000 metres were traversed in 12 minutes. All the companies gained, on the average, 2,000 metres' ¹ space, during which a continuously increasing movement out towards the right wing was necessary. The attack ensued with vigour. Counting in the removal of the obstacles in the meadow-ground, I reckon it 30 minutes till the centre (F./16th, 1st/57th) reached the well-known hedge. Add, for the whole line, 30 minutes for the stationary fight, and 30 minutes for the retreat. I get then 1½ hours for the total duration. After a quarter to 6 o'clock the remains of the Brigade will have been united south of the road Mars la Tour—Vionville.

(c) Expenditure of Ammunition and Results of Fire

To calculate the expenditure of ammunition is very difficult. For it has not been possible to draw anything to rely upon from the reports and records of the troops. In general the dominant view was, that we had been put *hors de combat* before we got to shooting. Therefore one must content oneself with a reckoning from probability.

The 5 battalions went into the fight with a strength of 95 officers and 4,546 men. (Work of the General Staff, p. 626, I. Footnote.)

Up to the glen running from east to west they lost perhaps 20 per cent.; so the number of rifles there amounted the wheel much time had been lost. Now the movement was so hastened that it would have been an impossibility to push skirmishers forward; and, since Major v. Medem saw some in front of him, there were none brought forward at all. The Half-Battalion 11th, 9th/57th, delivered 2-3 volleys before it reached the skirmishers' line; it then advanced with drums beating, and, like the Half-Battalion 12th, 10th/57th, it attained to the southern edge of the ravine. The latter did not fire at all in the advance; but it fired for the first time in the retreat, and then few shots. Hardly had the two Half-Battalions reached the southern edge of the ravine, when the French troops, couched on the other side, made a surprising rush out of the gunpowder smoke. Here the Fusiliers were hurriedly dispersed. F./57th was the only Battalion that found no cover at all. It remained only a moment in the fighting-line, and lost 10 officers, 386 men, from a strength of 900 individuals; and of these the 10th Company lost 3 officers, 130 men.

¹ Reckoned from the forming up south-west of Mars la Tour.

to 3,640; 12th, 9th/16th; 4th/57th; 3rd/57th, never got to shooting at all. If we subtract on account of these 909 rifles, deducting 20 per cent. losses, the total figure of rifles still at work falls to 2,910. The companies of the F./57th may, from the statement of several officers, have fired off between 3 and 5 cartridges. Assuming an average of 4, for the others 10, this makes $21,850 + 2,908 = 24,758$ rounds. Further, there must be discounted therefrom the losses, which during the conflict rose to 53 per cent.; and, since the greatest part of them falls to the retreat, further inquiries become very uncertain. Nevertheless, one may estimate the Brigade's total expenditure of ammunition at about 18 to 20,000 cartridges.¹

How great that was on the adversary's side has been impossible to ascertain. But in the short time it must have been extraordinary; for General Ladmirault (IVth Army Corps), on the evening of the 16th, reported lack of ammunition. Further, on the 17th, numerous cartridges were found in the French positions; and they made it possible to draw a conclusion as to the extent of the hostile line of battle. Men of Grenier's Division maintained that they had fired as many as 150 per man, and that their rifles had been so hot that they could hardly hold them in their hands.

If we take it that the adversary had fired on the average only 80 cartridges per man, the result, with 11,925 rifles at work, would be 954,000 rounds. According to this, out of 452 projectiles, one would have hit,² with long-range fire, flat trajectory, a coverless fighting-ground, and the lines and

¹ Major Meissner maintains in the *Militär-Wochenblatt*, 1891, that men of the 5th Company of the 16th had fired 30 cartridges. If the correctness of this proposition be granted, the total result would yet be but little affected thereby.

² This reckoning is based on the figures in the Chapter on Losses, V. (f), and pages 168, 169:

16th Regiment: 48 officers, 1,380 men.

57th " : 24 " 653 men, among whom was one man of the 5th Company.

72 officers, 2,033 men.

Together 2,105 persons.

columns in close order used on our side, not counting the Artillery and Mitrailleuse fire. Certainly it must be here considered that many men had been hit by more than one bullet. Killed and wounded with 4 and 5 shot-wounds were no rarity. It is self-evident that this is only a statement of probability. Still, with the modern range of rifles, the greater accuracy, more flattened trajectory, and the important increase in penetrating power of the projectiles, there would, on a basis of the Tactical formations then used, be at many places 3-4 times the results.

There were out of action :

	1st : By Death or Wounding		2nd : Missing		Remarks
	Officers	Men	Officers	Men	
1st/16th	7	189	1	428	Cover up to contour-line 780
2nd/16th	5	? ¹			
3rd/16th	5	181			
4th/16th	3	109			
5th/16th	2	47			
6th/16th	4	80			
7th/16th	2	?			
8th/16th	8	?			
9th/16th	5	?			
10th/16th	4	128			
11th/16th	4	134			
12th/16th	4	94			
	48	1,818			
1st/57th	4	70	1	26	Over open country there and back
2nd/57th	3	90			
3rd/57th	3	56			
4th/57th	3	51			
9th/57th	3	56			
10th/57th	3	130			
11th/57th	2	92			
12th/57th	3	108			
	24	653 ²			
Together, 72 officers, 1,966 men.			2 officers, 449 men.		

¹ The companies against which a ? is placed lost over 100 men.

² The figures in the first edition in the brief History of the 57th Regiment by Captain Hilken have in the second edition in 1889 undergone a correction which agrees herewith.

Of the missing of the 16th Regiment (1 officer, 423 men) there returned from captivity, on the 25th of August, 1870, 1 officer, 356 men;¹ the remaining 67 must be counted with the losses of the corps in the battle, whereby these rise to 48 officers, 1,880 men. That may have been the greatest loss suffered by one regiment in 1870–71. The total loss of the 5 Battalions through fire amounts, therefore, (without prisoners), to 72 officers, 2,033 men.²

The first trustworthy news as to the end of the battle I received through a letter of Colonel v. Cranach,³ which he had written some days after the battle, with the intention it should reach the knowledge of Herren v. Bernewitz, v. Nerée, v. Boreke, and my humble self. Therein it was said, among other things: 'What the Regiment (57th) performed I did not fully comprehend till the next day; and I must say the men fought like lions. I am now all the more proud to be at the head of the Regiment . . . The brave Erhardt (leader of the 12th Company) died soon after the battle, and for the brave Schreiber (adjutant F./57th) the same were to be wished.' (The latter had received a shot in the right side of the temples, which had made its way out at the left, but so that the right eye was dashed out, the left severely wounded. Besides this, he was shot in one foot. He was generally given up at that time for lost; but God disposes! Schreiber was restored to health, and is now a captain unemployed, and for the fourth time representative of the Nordhausen Landkreis in the Landtag. He it was who, in the incident at Probus, was noticed as an ensign. His wound

¹ History of the 16th Regiment, p. 278.

² How peculiar is the management of fate let the following teach: Among the fallen was Lieutenant Weinhausen, who was adjutant in Gräfrath. When the mobilisation was finished, he had got leave for a short time, in order to participate in one fight at least, and then return. On the 11th of August he joined the Regiment, in which he was assigned to the 12th Company of the 57th. When we then moved off to the battle of the 16th of August, he was full of glad hopes; but the first fight, which was to satisfy his intelligible ambition, claimed his life. The brave man, when he had already slept long under the earth of Mars la Tour, was strangely pursued under a warrant with a statement of his 'description'!

³ Is living, a general of Infantry, in Berlin.

already furnishes an evidence for the experiments of Professor Bruns and others, to be later mentioned. To-day the place where the shot entered can only be observed with difficulty, the somewhat larger opening where it passed out rather more easily.)

The 5 Battalions of the 38th Brigade entered the fight with 95 officers, 4,546 men. They lost in killed and wounded 72 officers and 2,033 men; therefore, in officers 74½ per cent., and in men 45 per cent. In this calculation the prisoners have been left out of account.

The IVth Army Corps of the French has stated its losses on the 16th of August, 1870, at 200 officers, 2,258 men. On page 154 the figure has been corrected to 147 officers, 1,722 men, including Legrand's Cavalry Division. Still the loss was great, in comparison with the shortness of the fire fight of the 38th Brigade and its very small expenditure of cartridges. The greatest part of the losses must therefore have been owing to our Artillery and the 79th. To elucidate this and other points I wrote to Generals Ladmirault, Grenier, and Cissey. The first adhered to the official figure. Neither of the latter replied.

One is probably in order if one assume that at least half of our losses fall to the retreat; consequently, 5 Battalions, during an advance of 1,500 metres up to the retreat, would have lost 36 officers, 1,016 men. Notwithstanding a long attack movement, then, under very unfavourable circumstances, the Brigade arrived in fighting condition at a firing distance from the adversary at that time effective. Thus the Tactical formations employed: advance without pause, and without firing, with skirmishers and company columns, proved themselves adequate in face of mass fire at long and short range; the attack was, too, a frontal attack outflanked.

Also, the defeat the Brigade suffered was due less to its mode of fighting than to its great inferiority in numbers, and misapprehension of the state of affairs on the adversary's side. Its fighting-ground was as unfavourable for an attack as possible, and was like a place created for mass fire at all ranges. Yet the losses sustained by this outflanked frontal attack were, up to its retreat, not greater than those in other

modern battles; nay, they were even less than in many a conflict of Frederick, or of Napoleon, wherein the decision had to be strenuously won by the hand of assault: that is, if the figures transmitted to us in these cases be correct!

The proportions before us are, then, really nothing extraordinary. Is it not apparent, on the other hand, that the adversary suffered, in equal degree, when opposed to us in the battles of Beaune, Loigny, Villiers, Bapaume, and on the Lisaine? Certainly the enemy's troops there often exhibited in their Tactics a not unimportant inferiority to the German.

The picture I have given of this attack, and the way in which I have tried to analyse it and to explain the particular phenomena, must guard us against wrong conclusions. By the small-bore rifle, and so forth, the opponents of every closed formation have, indeed, received new arguments for their theories. But it is still always possible that situations of the fight occur in which an advance in close formations up to 6-400 metres is practicable.

IX. WHY WAS THE ATTACK OF THE 1ST DRAGOONS OF
THE GUARD SUCCESSFUL ?

ALL that I have seen, heard and read of the Austrian-Saxon troops must fill friends and adversaries with respect for their discipline, as well as their behaviour on the field of battle. For example, in 1866, even within the area of a devastating Infantry fire, the Saxons preserved order and their Tactical formations ; which were not destroyed till defeat took place. Just so when for a moment they were victorious, it turned out that their spirit and their discipline did not, at times when watching and observation were absent, degenerate into repulsive and base outbreaks of hate or other wild passions. Tactical points of view were always the first consideration ; and the powerless prisoner, wounded or unwounded alike, was always sure of mercy.

Our experiences on the battlefield of Mars la Tour were different. I willingly acknowledge that martially and morally we held our former adversary in respect. We knew, indeed, that the French nation regarded itself as standing at the head of civilisation. Accordingly we could not well hold in disesteem the mind of the Imperial troops. But so much the greater was our disappointment. I would pass the matter over in silence if it contained no instruction.

Certainly one views such things differently at the green table, and when wounded observing them from the battlefield. It is natural that one may mistake in the latter case ; yet errors are also not excluded by the quiet air of the study, where reason should check the passions. Some voices express the opinion that the French Imperial Infantry was Tactically superior to the German ; among these are to be found very influential Austrian soldiers ; and the Germans them-

selves do not deny that the Frenchman is superior in making the best use of fire, and in local combat, where he can develop his fine capacities. And, besides this, the German Infantry, in the first period of the war, made many mistakes in Tactics. But what was the course of the French attack here?

When the 38th Brigade was swept away, there came after it, first one division, and, later, half of another, in several Lines. There was no longer any effective Infantry in front of either of these bodies; yet the forward movement was unwieldy and slow. First came a line of skirmishers, in which all was crowding and disorder; in which everybody was shouting; in which no Tactical order prevailed; which besides halted repeatedly without meeting resistance. This line was followed by a second; and then came battalions in line, with their eagles. I was not able to make further observation. The Artillery did not join the movement, but stayed in its old position, excepting a battery of Cissey's Division, which followed as far as the north edge of the often-mentioned ravine, and began firing on Tronville. The first line of skirmishers fired, and indeed generally from the hip, without aiming at all. Both lines passed over us. And at the place where lay most of our killed and wounded, about 150–300 metres south of the ravine, the battalions halted. The distances between the Lines were very uneven; the first two lines became in part mixed up in their advance. The French might perhaps have got to 150 metres north of the contour-line 780, when the 1st Dragoons of the Guard attacked; and now an indescribable confusion developed itself. Both lines of skirmishers rushed back; rifles and field equipment were thrown away; other skirmishers laid themselves by and between us, upon the earth, or tried to form small bodies; the men fired in all directions; meantime an irregular fire ensued from the battalions in close order. That 3 squadrons of the 1st Dragoons of the Guard rode through three Lines, put 2 to flight, and threw into confusion the Third, which was in close order, shattering all three, sounds absolutely incredible, if one consider their small strength and the unfavourable circumstances under which

they had to attack. Here doctrine sticks fast, and, much as has been written about this brilliant event, no single author has attempted to find the explanation of it. I will give it; it is very simple. If the French Infantry had possessed that which an efficient corps must have, Tactical order and discipline, then no Cavalry could have had even the smallest success under conditions where the field, being so open to view, excluded all surprise. Yet it did effect a complete surprise; and hence arose the confusion and distraction on the adverse side. That gave success to the Dragoons. But how were they able to effect this surprise? Because the adverse Infantry paralysed the greatest part of its rifles, by the 13th and 48rd Regiments, from the left wing of Grenier's Division, making for Mars la Tour in an almost westerly direction. By this they prevented the French front, which was cut at an acute angle, from delivering its fire; and so exposed the flank to us as well as to the 79th and parts of the 57th in the Bois de Tronville, and the rear to the Artillery that was to the south-west of it. To this Tactical mistake there come other circumstances which still further facilitated the work for the 1st Dragoons of the Guard: namely, the boundless disorder, the lack of discipline, the bad spirit of this Infantry, the powerlessness of its officers, and disregard of the adversary. When the skirmishers of the 13th Regiment came up with those of the Infantry of the front—moving over all our dead and wounded—it was as if victory were celebrated in joyous meeting. There may have been occasion for them to do so; but they were not yet master of the battlefield. They shouted, called and drank to each other, waved their caps, and busied themselves only with the unfortunate victims of the conflict in all possible mockery. By one Prussian whole groups remained. And what did this Infantry do? It soiled its name by indescribable cynicism, or by vulgar threats directed upon our wounded. The first salutations given to most of us were the muzzles of rifles. Most had our coats torn from top to bottom, and were robbed of our property. Would that had been all! Whole companies fell out as Tactical bodies, seizing up the Prussians that still lived and carrying them off as prisoners, or unsaddling our officers' horses that lay in

this line, so as to take bridle or saddlery to a place of safety. I was myself spared molestations, for a French officer interested himself for me; but while he was giving me a drink from his bottle, his men in the most familiar way rapped him on the shoulder, as if they would give him to understand their surprise thereat. That was it; they felt themselves sovereign of the battlefield, and occupied themselves with things they should have no business with. Meanwhile order was dissolved, and into this carelessness rushed our Cavalry. Success was and must be theirs. But I would not counsel them to attempt the same against any other Infantry; it would not make any '10 minutes' wait. These Cavalry did not come further eastward than to the right wing of 3rd/57th; then they wheeled to the left, rode the Lines on the whole front into confusion, and vanished, passing round north of Mars la Tour behind the place. In the front we were now free; and he saved himself who could crawl back, for a mad rapid fire whizzed for some time from the right and the front over the battlefield, on which no enemy stood any longer. But it is not correct to state that the hostile Infantry made no advance after, a conclusion which has to be drawn from all works about this event. The Histories of the 16th and 57th Regiments clearly make the statement, saying indeed that in consequence of this attack the enemy's Infantry retired over the ravine. On the contrary, as soon as the Dragoons had vanished, the Infantry followed again vigorously from the right, using the time to complete the gleaning of the battlefield. Into this period falls the taking captive of the brave Dragoons that were horseless or wounded, also still of many an officer and man of F./16th, 1st/57th, and F./57th. The correctness of my account is evident simply from the Dragoons that were taken prisoners! How would it have been possible for these to come into captivity, if the French had run away before them as far as across the ravine? Not till later did the general retreat into the original position ensue; and that was in consequence of the appearance of Rheinbaben's Cavalry Division at Ville sur Yron. The retreat, as the advance, was careless. Without any covering force the lines simply turned

about. On our extreme left a long dark column moved before them ; it was those we had left behind as prisoners ! Thus, along with Tactical mistakes, bad spirit and deficient discipline are to blame for the fact that the French did not reach results beyond those they had won by their fire.

SECOND PART

PSYCHOLOGY AND TACTICS

I. GENERAL

THE force which guides the masses is will. And the means of bringing the will to expression on the rank and file reside in discipline. Clear resolute will and regardless administration of discipline are, in the fight, the most valuable attributes of the inferior leaders; whose efforts must ever be directed to governing their subordinates through their own higher moral force, and their Tactically schooled mental endowment. This law is not removed by the most perfect weapons; but it is altered by them; and in Tactics, he only will be on the right road who does not lose sight of the fact that we have to reckon with many thousands of men, all of whom, though differing essentially among themselves, have yet in common the natural egoism that aims at sparing and preserving one's own life. But, beside the material, there is also a transcendental, a moral, a national, in short a psychical egoism, which may become effective indeed. The more highly this is developed, the sooner will it conquer the impulses of the material egoism. Mohamed was the type of an army psychologist, when he taught that This side the grave is naught, Beyond is everything. Only, in a people, this moral egoism must arise from natural conditions and causes that closely affect each person; it cannot be simply introduced by external influences; and the fighting-method must correspond to it, must be national. There are indeed times when the broad mass of men is seized by the motive of the war; and we have just noticed an example of such times

(1870). Although there are exceptions, yet in Tactics we must take generally into account a phenomenon that formerly did not attain such prevalence as one may expect it will in future, namely the strengthening of national feeling. Nay, in the case of our presumable adversaries, the Russians and French, an important heightening of psychical condition supervenes through a hatred artificially created, and nourished during a whole generation. Among the French the hatred arose from the defeats they suffered in 1870-71; among the Russians, from discontent with the issue of the victorious war of 1877-78. Besides, in both peoples, the military spirit is considerably strengthened, because they hope everything from the army. The political hatred is further fed in Russia by the Orthodox, in France by the Roman Catholic clergy. The Tsar, too, is not merely the political, constitutional, and military, but also the religious head of the Empire. The moral force of the two armies must gain by these circumstances. The future war can become nothing else than a national, a people's war. Nations which desire to gain something, apart from any distrust of their ability to maintain themselves politically with credit, will as a rule possess even in their armies more operative imponderables than others do that have some degree of political contentment, and merely desire to hold, that is to protect, their property, their position among the nations.

This point of view is doubly worthy of remark in a system of Tactics wherein the personal power of the superior can no longer make itself in such degree effectual as it could in the Tactics of earlier days. In future, much will then depend on the degree of moral power possessed by the man in each individual case. Indeed it is principally on this basis that the Tactics of masses of skirmishers can have any prospect of practicability. For the only things that can furnish a substitute for the reduced operation of leaders upon masses are the more strongly developed personal feeling of honour, and the national principle of honour. Armies will meet each other that are more nearly of equal strength, organisation, arming and training than ever was the case before. And in every army must appear those higher qualities which live and operate among the people. The psychology of peoples

becomes therefore a true element of warfare for the future, and naturally of Tactics also. To attain a thoroughly clear view thereon must therefore be a department of assiduous private study for each officer. And that belligerent will have a great advantage in Tactics which has been able by education in peace time to bring on to its side the greater weight of imponderables. Now I will abstain from any comparison between these forces on the side of the presumable adversaries ; one may easily make a mistake in that matter ; but everything must be done towards a strengthening of moral spirit. If we ever reached such a point that a national injury, to honour or to territory, and so forth, were felt in equal degree by each man as discredit and ignominy, and that, in each man, the pressure of honour in consciousness and feeling came to full assertion, causing him to demand satisfaction and to pledge from his inner impulses body and life for this, then Tactics would have an easy game to play. But that is not to be hoped for to-day. For in all modern nations one observes a continuous and embittered conflict between the material and the moral egoism. The whole of modern society takes part in it ; and dissatisfaction with present-day conditions, social, political and religious, consumes a great share of moral power. Community and people, the state and its institutions, wear themselves away by mutual struggles, and exhaust very valuable powers. A certain spiritual and political apathy is showing itself in some nations ; and this may lead one to doubt whether in those cases the national feeling can mature those advantages in Tactics which are hoped for from that feeling ; and whether it is what it gives itself out to be. Even in times when a burning patriotism moves the souls of all, the enthusiasm of the majority is silenced on the threshold of death ; material egoism conquers idealism, bodily weakness conquers the power of the soul, and the desire to remain alive conquers the will to give up life. Only a minority continues to carry enthusiasm with it. And only few out of this minority maintain, among the many adversities, exertions, and privations of war, from beginning to end the same elasticity of soul, the same power of will, and in all dangers the same resolution. Of myself, at least, I confess that those powers change with the

mind's mood, the body's condition, and the atmosphere in which we live. The common egoism knocks now and then at the door ; and man, who clings very much to material things, much more so than unthinking people suppose, is more or less often the 'personal battlefield,' whereon human weaknesses strive with the noble and robust emotions. One confesses, another is ashamed to say it. It must not be passed over silently, however, but must be emphasised ; for not until each is clear on the subject does one reach sound views and the means of gaining first of all the victory over oneself. In this state of the matter, the current theory of the soldier's courage falls to pieces ; it is a myth, and as a rule it can be nothing else ; manly examples alone exercise upon rank and file with sense of honour a great effect, an effect which, according to my experiences, is even a calming one. In the school of war the man accumulates knowledge of war, and there the leader unceasingly exercises his spiritual, mental, and physical powers, if he strive after what is lofty, and regard war from the artist's point of view. But as a rule one may say that courage in war does not strengthen itself in the mass, but in few ; and these few, officers and men as well, form the soul of the corps. The soldier most courageous in himself is the one who has not yet been under fire ; for what he is accustomed to while living at peace may become so strong in him, that in the fight he moves for some time as if on the manœuvring-ground. But not for ever ; only so long as he is ignorant of the danger he has been brought into. As soon as it comes to his consciousness, there sneaks upon him a concern for his own self, instead of any inward gain in spirit and force for the cause and for the idea. If a corps suddenly stop in the advance, this is not psychologically to be explained otherwise than by the fact that the danger of the situation has become clear to it. These are the decisive moments, withstood only by strong spirits that have the energy to re-enliven by their will-power the vanished courage of the corps, and transport it over such moments of weakness. But there is a great difference between these and the phenomena brought on by the feeling of numerical inferiority.

The Brigade which carried out the attack on the height

846 would, after gaining knowledge of the danger, hardly do again what it then did. No human power would have dragged it up and forward, any further, when it lay close to the enemy. There is even in Tactics a boundary before which will-power refuses and personal force is no longer effective. This boundary makes itself felt in a purely instinctive way among officers and men ; it comes in some degree from recognising the material superiority of the adversary's fighting-power ; that is, then, your own Tactical inferiority. For only thus is it explicable that at such moments leaders and men suddenly, without mutual agreement, without orders, without any sign, &c., turn about ; that a corps which at this moment still showed the finest behaviour, some moments later collapses entirely, like a house of cards that falls together on being finished. One must reckon, therefore, not merely on passion, enthusiasm and courage of the individual, but consider that the majority remains indolent in a Tactical respect ; for he who does not act of his own initiative, but requires the impulse of another to make him act, is to this degree indolent. If, despite universal conscription and assertions on other points, one keep that before the mind, then one best serves King, Fatherland, and nation, and will in actual operations have recourse to correct means. What officer that has stood in the devastating fire will assert that it cost him no resolution, when behind cover, to rise up in order to rush forward across an open country where death and destruction ruled ? Who will deny the impossibility of this readiness of resolution being present in the majority of rank and file ? Who will deny that the majority do not act of their own motion, like the officer, but first require an impulse external to themselves ? In whose experience has it not happened that the sound of the skirmishers' whistle, even when heard, has been not heard, that the officer in his rushes forward has from the beginning been resolutely followed by only few of those who lay behind a piece of cover, some of these moving slowly, others not at all, and that the whole advance comes to a stop so soon as, for instance, the officer that leads sinks down under the enemy's bullets ? We have behind us Musketeers, not Heroes. Not only is it difficult, under the devastating mass fire of the present day, to

get the swarms to quit a piece of cover, and to lead them forward ; but also the unity of guidance of many small detachments is far more difficult than it used to be, in open country indeed often impossible. To bring this strikingly to view the two examples were chosen, which are separated from each other by only four years (Probus and Mars la Tour), and took place under conditions that were in many respects equivalent. On the one hand, at the first of these attacks there was present an uninterrupted guidance of the Elbe Army over divisions, brigades, down to the individual battalions and companies ; in that example commanders of divisions, brigades, and regiments were present from beginning to end, in the skirmishers' line or with the bodies in support of it ; and, for instance, Major v. Thile, officer of the General Staff with the 14th Division, traversed the distance, both ways, from Probus, already taken (27th Brigade), to the south-east, to carry to the 28th Brigade the order to attack the Briz Wood, so passing within close range of the enemy's fortified positions ; further, the 28th Brigade, under effective fire from the enemy, carried out a difficult wheel in order to take the wood, while the tie between leaders and fighters was never broken. On the other hand, at Mars la Tour the whole Brigade quickly fell out of the hands of the higher leaders. What was practicable four years earlier under the same conditions of ground was, after the expiration of that time, impracticable within the sphere of the mass fire of breech-loaders ; and, under similar conditions, impracticable it will to all futurity remain.

If already in any system of fire Tactics the knowledge of the weaknesses of human nature demanded that the bodies capable of direction by one person should be as long as possible kept in hand, we are not at all freed from the control of this principle by the small-bore rifle. Rather, it forces us to use the principle in a reasonable way, so that there may be any possibility of guidance at all worth mentioning. But if this be held necessary, then the means also must be adapted to it ; for he who desires the object, must also desire the means.

No Tactician should assail this principle ; but it must be left to the artist to show how he shapes it into serviceable

adequate Tactical means among the diversities of the battlefield. This needs clear Tactical view, knowledge reasonably acquired in peace time, acquaintance with the shooting performances of the weapons (Infantry and Artillery), &c., things one does not always find where in present conditions they should be, in the lower ranks of leaders. Since, now, the weaknesses of human nature are not removed even by enthusiasm, the conclusion from this is that the Tactics of to-day require from all leaders a higher degree than before of knowledge and ability, of initiative and energy, of understanding and endurance; in one word, that Tactics have become more psychological. The advance against positions as at Probus, Mars la Tour, and St. Privat will remain the exception in comparison to the united proceedings. And even such an advance, in the present day of small-bore rifles, &c., would, with rational planning and use of country, be yet always practicable, without exposing us to annihilation. Still more rarely will it happen that, as at Mars la Tour, an isolated brigade is thrown against an impregnable position, unless either it itself attempt with one of its battalions to operate on the adversary's flank, or a flank movement be made by another corps in conflict near it. That which was desired, or had to be done, by the 38th Brigade on the 16th of August, 1870, the 1st Brigade of the Guard at St. Privat, and the different brigades at the Mance Ravine on the 18th of August, 1870, must lead to failure, because it rested on mistake of the situation. The same degree of ill-success would have existed in Frederick's and Napoleon's times as in 1870, because the thing contradicted Tactics essentially. A frontal attack under such conditions will never bring a decision; but this must be brought about by the neighbouring bodies fighting on the right and left. And, as the 38th Brigade had to succumb in front of superior forces of the enemy in a strong position, it is equally sure that at St. Privat the Guard Corps, in similar circumstances, would never have taken the place by storm if the turning movement of the XIIth Army Corps had not attained upon the wing the decision that could not be gained in front. What a comfortless state of things for the troops that are thrown against the front! No, not comfortless, but as

honourable as possible. This is proved by the behaviour, certainly not by the leading of the Guard at St. Privat, as well as by that of the troops of the 15th Division at St. Hubert. They must bear the severest losses, and hold out, too, under the devastating fire, to relinquish to others the very palm of victory. Every minute thins their ranks ; at the favourable-looking moment the adversary himself tries to rush forward to crush the residue under foot ; and then appears what there is in a corps and what must be demanded of it. It must not suffer loss of its moral power ; and to retain it the higher guidance can give substantial aid, on its part reckoning with the man's physical powers. But if these are as much exhausted as those of the 38th Brigade at Mars la Tour, then the human being is no better than a block of wood, and is, like that, thrust aside : he can resist no longer. The value of a corps is not measured by the greatness of its losses, but by the conduct it maintains in spite of them ; that is, the degree of resistance it is able to make, and of its fighting capacity ; in other words, its moral power is what turns the scale. This again depends on the physical power. And what the Guard at St. Privat performed, because its physical powers were not exhausted, must have remained unattainable by the 38th Brigade at Mars la Tour, even under more favourable numerical conditions on both sides, because the Brigade was physically spent.

II. PRINCIPLES

FROM what has been said the following general points of view may be evolved :

1st. Consideration of the human weakness that seeks cover rather than exposure.

2nd. Choice of formations for the attack which offer to the adversary the least favourable marks, but on the other hand allow to the individual man free movement for making full use of the country and of the weapon ; for attaining a favourable fire position, and in it superiority of fire.

3rd. The Infantry attack is combat by masses of skirmishers. It demands early and sufficient deployment of skirmishers, as well as timely and adequate leading of supports after them. There is only one formation, namely the opened line in single rank, for movement, fire, gaining the position, reinforcement, and pressing forward from one fire position to another. As to firing, there is only one sort : skirmishers' fire. This is the universal mode of combat for the Infantry.

4th. Disorders and mixing up of units come to be the rule. To govern them so far that the fighting-power may subsist as fully as possible at every point is a principal task of the inferior leaders ; therefore a multiplication of the inferior leaders is necessary.

5th. In the execution of the combat there are Lines¹ no longer, but only opened lines in single rank² for filling up places, till we get to the reserves. Also the word *Staffel* is an antiquated expression. On the other hand, the Lines are indispensable up to the deployment. The smokeless powder is assumed as self-evident ; for the present generation

¹ [The German phrase here is *Treffen*, meaning 'First and Second Lines,' and so on ; as frequently above.—TRANSLATOR.]

² [The German phrase here is *einreihige geöffnete Linien*.—TRANSLATOR.]

will now fight with this only. The phrase normal attack must not be used at all. Fire at long and at close range, in the sense of its use on the German side in 1870-71, is ballast that only leads to confusions; the contest as to the admissibility of both is decided. Movement and fire are but the different forms of one act. The distance from one supporting body to another has only a maximum limit; according to the character of the ground deviation from that is to be made.

6th. Forming up, deployment, and the execution of the combat are different stages, for which there must be certain settlements by regulation. Otherwise there are no means for a coherent method in union with a Tactical division of work; none for bringing the masses of skirmishers organised upon the scene; none for being able to govern the disorder. Every brigade must hold absolutely fast to its extent of front. Within the brigade front there often cannot be avoided deviations—according to the ground—from respective extents of front. So they must be admitted. Besides this, the fighting from depth does allow an extension of the brigade front up to 1,400 metres in the pitched battle.

7th. Frontal attacks over open ground are to be avoided as much as possible. If this be not possible, then the forces to be used for them must be numerically so adjusted that after great loss they may still possess sufficient moral strength for holding out, and moral and physical (Tactical) for resistance. There are needed accordingly correct proportioning of the reserves, a satisfactory choice of the place for their array, and a timely bringing of them up.

8th. The attack proper, the taking of the enemy's position, demands fresh troops as a rule. Unless superiority of fire have been attained by Infantry and Artillery, every attack is hopeless. But it is difficult to recognise this instant of time; and therefore also to recognise the instant for sending up fresh troops, which can only be the business of the higher leaders.

9th. To continue as long as ever possible in movement without stopping; and herein to make use of all cover for protection of the movement, but not for that of lying down. In most cases that will be practicable in skirmishing forma-

tion till 600 metres from the adversary ; where there is cover, still further, and then even in close formations.

10th. In accordance with this the fire fight also is to be taken up, but it must fully cover the space of deployment of the brigade.

11th. For a forward rush all effective means must be employed. What most recommends itself is to carry that strenuously forward by fresh troops, even if only collected sections ; to bring them after at the right time should in most cases be possible. If there be a clear field of fire, they must move only in swarms. How many rushes the same body of men can perform is quite uncertain. We have for this no sufficient data of evidence ; and perhaps nowhere will so many disappointments be experienced as with the advance by rushes, for herein theory will not allow itself to be brought into accord, in most cases, with conditions that lie before us in practice. I do not place great hopes on the advance by rushes, especially if it begin already at longer ranges.

12th. The Infantry is supported by energetic fire of Artillery.

13th. If the adversary give way, the victors press after him ; and at this stage all those of the troops engaged are again collected who cannot bring their fire to bear.

14th. If the attack fail, the first resistance must be given by the Artillery, supported by the reserve of the different arms.

The assailant desires to conquer, and to this end, making a thorough and clever use of the country already reconnoitred by the guiding authority, he must even nowadays still get forward up to that range whence fire can exhibit the necessary effect. Reconnaissance and use of ground, which were indeed formerly of great importance, have attained uncommonly greater consequence by reason of the smokeless powder. By it these operations are also made much more difficult ; but, for the rest, one must resolutely look in the face the inevitable fortune that every attack costs blood ; one must educate the man to this, accustom him to the thought, and reckon with that in the Tactical formations for the fight.

Does not military history teach that attacks on strongly occupied positions, even before the introduction of breech-

loaders, have cost just as many men as in the war of 1870? Consider Leipsic.¹

Attacks with bodies of troops of considerable size over open country may after all become necessary; therefore in peace they must also be made the subject of exercise. Even the recognition that this attack does not lead to the goal cannot do away with such necessity. The import of even an unsuccessful attack may be very great.

The smaller the losses, the more fixed in general remains the steadiness of *morale* in the corps. The soldier must however in peace be prepared for great losses in every attack, and be, as I said at the beginning, psychologically (morally) educated to them. Without giving him a high degree of will-power; without education, which points in all matters and everywhere to self-conquest and disregard of danger; without energy and will, the will to come forward, all formations will still be artificialities and unproductive of any result.

Not only the Infantry, but also the Artillery, have acquired better weapons; and both arms have become more independent and more capable of resistance.

Where the configuration of the battlefield condemns the Infantry to the part of halting at medium ranges from the adversary and holding on (in the front on level ground, open and bullet-swept), there the combat may be carried out principally in partnership with strong Artillery, as the importance of this arm demands. But should an Infantry believe that it in future can do this alone, it would draw to itself punishments of blood. The defence has gained in strength; it will also make more use of positions specially prepared; but both defence and attack of these will assume shapes essentially different from those hitherto seen.

¹ For instance, the Prussians lost at Kollin 40 per cent., at Zorndorf 38 per cent., at Kunersdorf 40 per cent.; the French at Borodino 30 per cent., at Aspern 50 per cent.; the Germans at Mars la Tour, the bloodiest battle of the war, 1870-71, 22 per cent. Certainly the statements as to the earlier time have but poor warranty. I cannot here enter into the thing. Whoever wishes to inform himself thereon may read the essays in the *M.-W.-Bl.* for the year 1898 by Bleibtreu, by v. Boguslawski, and by v. Lettow; also by Roloff in Number 69 of the "*Deutsche Heereszeitung*, 1893," and in the "*Preussische Jahrbücher*, 1893," April part.

III. INQUIRIES AS TO THE PRINCIPLES

THAT a corps lying behind cover never rises without an external stimulus from its officers, to bring itself from comparative safety into great danger, hardly needs particular demonstration; and every combat wherein the officers have fallen or been put out of action furnishes instances of that. For as a rule the advance is then at an end; and one must be content if the corps hold on at the point it has reached. To carry out any extraordinary thing the human being requires also extraordinary resolution and great will-power, which can only arise from his complete merging in the cause. Only devotion to ideals can restrain the impulses of the material egoism, put the man into the service of loftier aims, and incite him to voluntary renunciation of his existence. The soldier therefore, like the artist, must have an idealism; he must believe in it and be ready to give up all for it. This is a doctrine; but it by no means implies the statement that those requirements would be attainable in the case also of every soldier. The idealism may differ as much in itself as men differ; it may be called faith, fidelity, love of fatherland, political conviction; it may strive for fame and honour, greatness and dignity; in its expression it will be alike, and that is the main point in Tactics. That staking one's life is something extraordinary everyone will admit; and, just so, that the Musketeer cannot in general possess of himself the capacity to be merged in the cause, for which he must offer his life; he must therefore be educated to it with the greatest care, and this is the task of officers in peace time. If any soldier hesitate in acceding to this proposition, I ask him whether that courage ever existed which we are accustomed to meet with in non-military reports,

and unhappily also in military ones? Whether cases have not fallen within his experience where the men lying down have needed, to get them up and onward, not only an heroic personal example, but one thing more, of which we do not like to speak—wherefore the gods may know—namely palpable aids? The majority of men will hold off as long as possible from personal danger to life; and in the fight but few voluntarily withstand the temptation to seek protection in the cover of the ditch they are crossing; the few merit the highest praise, they are heroes of the fatherland. The remaining number obey ultimately only necessity; that is discipline and the superiority of their leader's nature. Even in wars where the motive thereof has struck the mass of the host, and more or less inspired it with passion, one will do well to keep hold of that fact. Then one knows what the generality of men can give, of themselves; and how much must be forced from them. But this forcing is made very difficult by the new weapons, and often quite impossible, because in its most effective shape it presupposes closed formations, which are no longer capable of employment on open battleground. For, as is later expounded, the flattened trajectory, the great range and penetrating power of small-bore rifles, as well as the extraordinarily enhanced effect of Artillery projectiles, prohibit closed formations of every shape on open country from about 1,500 metres down. Where the land permits their use, however, one will have to retain them, and possess herein the surest means of bringing the bodies of troops to the points where one wants them to be. Where that is not the case one must try to find a reasonable substitute for that which is no longer applicable in form. And herein the smokeless powder comes decidedly to our assistance! I have several times seen it happen that with powder that produces smoke, the thick smoke so impeded the view that one could recognise only in quite uncertain outlines bodies in close order 20–30 metres distant. In such cases—they were at the decisive stage often the rule—the closed formations no longer supported at all, or supported but little, the personal influence of the leaders. This must be taken seriously into consideration. It was then pretty much as if one found oneself in fog. With the smoke-

less powder this has changed ; the leaders can always see their men, the men their leaders, unless special circumstances prevent, which does also happen. Now, in itself, the influence of the leaders on swarms was not, and is not, exactly *nil* in comparison with that on close formations ; but it was, and is, only smaller. However, the personal example can again be better seen since smokeless powder was introduced, for view is clearer. Besides this, there are still two means of strengthening the leadership in the case of swarms. The first lies in the careful moral education of men and leaders ; the second in the multiplication of leaders. The former is practicable without more ado ; the latter would demand a multiplication in peace of officers and non-commissioned officers. Now, though I do not believe that, by these things taken together, all disadvantages for the leaders of the swarms can be obviated, yet they are much diminished, and the corps preserves a certain fighting-power, while with closed formations that power would quickly vanish ; for when these formations collapse, their fighting-power also is lost ; but it seems to me beyond doubt that in presence of modern weapons, on open fighting-ground, closed formations must collapse, even at long and medium ranges.

If we keep in our eye the fact that as a rule the man puts himself into danger only when he is compelled, then the Tactical formations must be such that compulsion can be exercised upon the generality. This was made most practicable by column Tactics, of modern as well as of old times, then by the line in close order, and least by the line of skirmishers. Further, in the first-named one more easily attains a greater speed and accuracy in movement.

The more spread out are the swarms, the more covered and hidden they lie in folds of the ground, so much the less possible are supervision and immediate exercise of compulsion, so much the greater is the trial of human weakness ; and accordingly it is just here that a greater measure of direct compulsion becomes requisite. Here is involved a problem of Tactics. If one would make possible the exercise of compulsion, by falling back on closed formations, perhaps by causing the men mechanically to 'close together,' we should be offering

unwarranted sacrifices for a principle, without making any improvement thereby. Thus the exercise of compulsion must find a substitute in the leaders being educated to greater activity, the men to greater attention. The task of the inferior leaders becomes harder thereby. They become the real supporters of the fire fight at all its stages. And the execution of their will must be more mental than mechanical; the means for attaining this being education, training, schooling, and a common understanding among themselves, Tactical judgment, and the continuance and equability of training among the leaders. The Tactics of the present day appeal, during the execution of the combat, chiefly to the lower leaders, and to the capacities of each individual man. Here is its essence. Neither can stand high enough in *morale*, if they are not to dissolve in the fire too soon; also, the former must be Tacticians much more than in earlier times, and the latter must be in a condition to always understand the Tacticians. For the shrapnel fire and detonating shells of the Artillery, pouring themselves like jets from a rose over the area of the fight, make columns and lines in close order inapplicable at long ranges; small-bore rifles prohibit them at medium and close ranges; and, since Infantry and Artillery will direct their fire knowing what they are about, besides always fighting in company, the column, and the line in close order, of every sort, remain excluded from the fighting on open ground. Line in close order¹ is in itself specially prohibited, by reason of its being a broader mark, and also its unhandiness. There remains only, as an unfavourable mark and the best formation for mobility under these conditions, the swarm in single rank. The swarms however must not be too large. And the limit best adapted for command might be units of 30 men in 3 groups of 10 men apiece.

Now we must consider that by use of this formation for combat the troops are as a rule very quickly snatched away from control of the higher leaders, and, in many cases, at later periods of the fight, from that of the lower also. We have again to weigh the fact that the business is not the

¹ [The German phrase here is *die geschlossene Linie*.—TRANSLATOR.]

guidance of one battalion, but the launching of brigades and divisions: this no longer in Napoleonic formation, though indeed in the Napoleonic spirit. For great problems, and such are all conflicts about the decisive points, can only be solved with masses. If it is to be possible to direct these, keeping them at least in a certain sense coherent, then the leaders at the head of them must know what they ought to do, what they wish to do. They must not take their measures till they have grounds in thorough reconnaissances; but then they are responsible too for their decisions and orders. There must, therefore, be also complete clearness as to their powers.

For it is only by reconnaissances that the leader can gather a notion of the adversary and form to himself an idea for fighting him. But this neither can nor ought ever to be left confided to the inferior leaders. It belongs exclusively to those above, and including, the brigade commander. Arrangement (forming up) and deployment are therefore the business of these only. In the execution of the combat the two classes of leadership, the superior and inferior, certainly share with one another; but therein too it is chiefly the superior that is able to hit on adequate measures for timely bringing up supporting troops, for gaining an effective fire position, and for furnishing a further stage to attain superiority of fire. With the greatest proficiency and spontaneity on the part of the inferior leaders, it is not possible to recognise from the conduct of the firing-line of skirmishers what is the moment for bringing up supports. This cannot be contested by any one versed in war. In most cases, indeed, the fundamental requirement for it is wanting, namely, supervision. And ample supervision and consideration can exist only among the superior leaders; therefore to them must the guiding authority concede a corresponding sphere of operation in the execution of the combat also, if this is not to remain at the disposition of chance. For thus only can we reach the necessary degree of coherence of action—that is an organised combat by masses of skirmishers.

It is quite erroneous to suppose that by this all spontaneity of the inferior leaders is cramped. They are, rather, merely preserved from arbitrary action in the fight. And it is only

by such means that the brigades can keep firmly to their allotted direction (areas); only so that army corps can reckon with divisional spheres of fighting; and the armies with those of army corps. These matters lie so simply before us that they really do not need many words. But if *Züge*, companies, and battalions may be free to choose their direction (areas), 'according to the country' (cover), it cannot fail that beginning from below a pushing and displacing make themselves felt, whose effect is visible up to the largest bodies. And that cause by itself neutralises and makes impossible all superior guidance, although this is still responsible. One need only consider these things in the light of mechanics to reach the conclusion that all this ought not to occur.

I go further, maintaining that in many cases the superior leadership will be in a position to most correctly, outside the deploying area, fix upon the principal fire station; also to announce this before the deployment. Only in country quite impossible to see over will the superior leaders be less able to do this well than the inferior who are in front; that is in all those cases where you have first to fight, that you may be able to see. To fix on an 'approximate fire station' is in thorough accordance, again, with the law of coherence, without annulling or curtailing the spontaneity of the subordinate leaders. Often, indeed, the spontaneity may reasonably begin from acceptance of this 'approximate' fire station. And it consists almost exclusively in a perpetual 'correcting' of the approximate, up to the best possible fire station. This is actuality. From the moment of 'correcting' forward, guidance in front passes more and more into the hands of the inferior leaders; the fighting area of the brigade being however adhered to as strictly as possible. Only circumstances of special urgency permit any transgression of this, to right or left.

With the 'correcting' coincides the increase of number of rifles; that is, the moving of supports into the fire station that is really the chief one, until the superiority of fire is attained; and the maintenance of this superiority in the station. That these are points where hardly any supervision

is possible, except that of the superior leaders, probably no one will contest who has experience of war ; consequently those leaders must concern themselves, too, as to the time and circumstances for the supports to move up (approach of fire). But more than this one should not demand of them, until the launching of properly drawn up reserves becomes the actual thing.

Doubtless the effect of the principal fire station will be better recognisable in front than by the superior leaders, who are further back ; and thus it is quite correct to say that the impulse for the seizure of the enemy's position must originate in front. Still, a relation of mutual understanding between superior and inferior leaders ought to exist also at that point of time—that is, shortly before the decision.

It will in many cases be impossible to fix it by estimate of time and space ; it will not be possible to maintain communications then between rear and front, to timely complete what one wants of resolves and of measures. At this stage the main point is left, rather, to the Tactical intuition of the inferior and superior leaders. But as to these difficulties there must be quite clear understanding.

From this it follows that I am still, as I was before, an opponent of a so-called 'normal attack,' although I am an unconditional defender of the fundamental principle of coherence in the method. The great importance is no new thing, of correctly determining the place and time for forming up, of gaining a timely survey over the area, and of holding fast to it. The entire activity of leadership was still in 1870-71 thought to rest only in the hands of the superior leaders. Actuality made this impracticable, and now arose Tactical embarrassment. The 'normal attack' was sacrificed. The sacrifice was good. But coherence of method was also abandoned. This must be recaptured.

Now, since small-bore rifles that carry far make it necessary to keep at a greater distance before the entry into the fight, this circumstance much enhances the difficulties of the leaders' activity for the forming up, the line of direction of attack, and the introductory arrangements for expansion in breadth and depth (deployment). But then it is all the

more needful to hit upon definite settlements for the activity of the leaders in the higher ranks at these stages !

The higher leaders will be as far as possible and as early as possible to the front, and be furnished with sufficient mounted messengers, about 4-6 to each brigade commander. They will there have to overcome different 'stages of uncertainty,' continually look to front and flank, and give orders to the rear. In this it cannot fail that under some circumstances the divisions, while far from the enemy, carry out their 'provisional' Tactical forming up just as was detailed, in the Introduction, for armies in respect to their deployment. Hence there will be often necessary a 'correcting' of the Tactical forming up, perhaps with an advanced guard action ; and this again demands certainty of marching in brigade bodies in close order. But, for this, we also find needful certainty in everything which is connected therewith ; and to this end we cannot do without either Column, or the Lines. For a transition from the 'provisional' Tactical forming-up into the marching column no longer exists ; all 'corrections' must be carried out by the bodies of troops as formed up. But then, the regulation thereon must contain precepts just as decided as those concerning the maximum limit of the brigade in breadth (and depth), or those concerning the maximum distance of the supporting lines and of the point for drawing up the reserve.

Within these maximum limits moves the activity of the brigade commander in the deployment, and in the execution of the combat. So a scheme for a normal attack could only arise if a battlefield presented everywhere the same conditions, if it had at all points the same character, and if the fight thereon had also. The great battles of the future will demand a space about 25-30 kilometres square for the stages of forming up on both sides, deployment, and execution of the combat. So, important differences in country must come to light, and to adequately take account of them may lie principally within the sphere of the higher leaders ; but it is their problem.

Certainly in the execution of the combat the troops arrive at a 'method of hordes' ; but, nevertheless, there can, or, just for that reason, there must, exist also definite precepts, because it is at all events more difficult to maintain coherence

in fighting than to beat into the head a 'normal attack.' In place of instructions which imperil coherence of action we want such as guarantee it. The distances of the supporting lines may be various, but the supporting detachments must within themselves be correctly deployed and correctly disposed one behind another. This the brigade commander only can bring about. Hence it follows that there must be put into his hands settled yet necessary powers for coherence of action, and that two brigades never are deployed quite alike and execute the combat in the same way; consequently coherence in the method and normal attack are not the same thing. Scherff and his followers demand the former, and only their opponents construct out of that a mechanical normal attack. Here again has become evident how easily the letter may kill the spirit.

I have repeatedly spoken of 'correcting' in relation to great and small matters. Though this new agent in Tactics present itself unconditionally as a result of modern weapons, I have never yet heard it emphasised. The new weapons enhance uncertainty. Greater uncertainty compels to greater foresight, and this to every preparation being subjected to thorough reflection. Accordingly, no leader's position can realise from the very first that degree of definitiveness, in modern Tactics, which it formerly could: that is, as a basis for its perception and arrangements. These bases cannot by any means be attained merely through seeing and reconnoitring; but in many cases you must first fight. From this great relative uncertainty, which lasts long, results the necessity for unintermittent 'correcting.' It runs through the whole of higher and lower Tactics; indeed neither are properly anything more than 'corrections from one case to another,' but those for the deployment of the brigade are founded on the areas for the pitched battle. Now it will most likely be admitted that 'corrections' of such sort relate to a special aim; that consequently they must be made with conscious aim; and that thus all the more must a coherent method subsist, which rests in the hands of the brigade commander, without detracting from the spontaneity of the inferior leaders in front. The brigade commander has the

function of 'Tactical corrector,' in much higher degree than this could formerly lie in the sphere of his authority. And no one else can solve the problem better and quicker than he; it is done by organisation of his brigade and bringing forward from that organisation such troops as the Tactical needs call for. Thus I consider the brigade commanders as the great supports of leadership in the pitched battle; yet on that account they will have to attribute the greatest importance to organisation, according to the circumstances of each occasion. Now for the first time is fighting from depth the universal problem of leadership. The continual 'correcting' puts it in its just position, for 'corrections' can be ordered and carried out from the rear principally. If a normal method would be wrecked already on the many diversities of the area of combat, we must not underestimate the difficulties which country develops for the coherent method. Under hostile Infantry fire it is well known every piece of cover exercises a strong attraction, and if this is to be overcome with real success the Tactician must regard all cover also from the point of view of the obstacle to simple advance and the hindering of the attack in the method of unity. I recall to notice the ravine at Mars la Tour and the hedge there, but, before all, St. Hubert, where a whole division crowded itself together, as regards the attraction of cover. I recall to notice the wire fences at Mars la Tour; the hop-grounds of Wörth; the garden-like character of the neighbourhood of Orléans and of Le Mans, with countless scattered farmyards, houses and villages; the multifarious enclosures, with hedges and walls, the channelled vineyards, and so on, as obstacles to movement. So anyone who, in the method of unity, always assumed connected lines of skirmishers would mistake its object and essence. Now if a country have quite short undulations, as at Wörth and Beaune, it cannot fail that the skirmishers' conflict makes uneven progress within the brigade, that possibly a stoppage and transient retreat take place at one point, while at another the assailant maintains an advantage. But all this fails to invalidate the idea of unity, and must not be adduced as a sound objection to it. The method of unity is not applicable without initiative of the

subordinate leaders. These two things belong to each other ; they are only the different forms of the same act. It is the subordinate leaders who must come to assistance of the insufficient insight of the higher ones ; they must be ever mindful of Tactical connection in the method of unity ; they often have to keep the action moving and bring it again into movement when it has come to a standstill, for such measures can at the right time but seldom be ordered from above. For this method of unity the war of 1870-71 presents different examples that are absolutely typical ; and this not only within the compass of brigades, but also within that of much larger bodies that belonged even to two and more army corps, though the details of carrying out may have here and there fallen short, more or less, of what one might wish. To them belong, for instance, the systematic way the XIth Army Corps fought at Wörth and its co-operation with the Vth Army Corps, especially the breaking into Froschweiler with troops from four army corps while enclosing the enemy's centre. To them belongs the co-operation at St. Marie.aux Chênes, at St. Privat, and Loigny, between brigades of two army corps. In the first case it is the envelopment on two sides in combination with the frontal assault ; in the last two, as at Wörth, the flank attack of brigades coherently employed becomes the impulse to the assault in front and to the coherent method of different army corps. A great example shows the opposite side : the conflict of the VIIIth, VIIth, and IInd Army Corps at the Mance Ravine ; while at the taking of St. Quentin the general does not attain the unity of action intended by him. Here and at the Mance Ravine the desired unity was not brought successfully into the action of the battle, because unity in the Tactical method was absent. Unity in the action of the battle presupposes, then, quite peremptorily, unity in the method of attack by the brigades ; and hence from the point of view of the guidance of the battle it is also necessary. Certainly events cannot be judged merely according to the Tactical phenomena, especially at the Mance Ravine. The example teaches, indeed, that the greatest imaginable agglomeration of troops, upon the fighting-space of a division at most, neither is a coherent method nor pro-

notes such ; because agglomeration like that no more permits a deployment for the fight. But supposing that in place of the commanders of the 15th and 18th Divisions and of various brigade commanders there had been men like Tresckow, Wittich, and Kottwitz, events at the Mance Ravine would have taken another course. Here three evils met : want of unity in the method of attack, incapacity of many superior leaders, and want of unity in the action of the battle.

The companies and battalions which form the firing-line can no longer be regarded as subject to guidance of the superior leaders ; hence, for them, all these swarms are more or less lost ; they fight straight ahead only ! From this it follows that the higher leaders should apprehend clearly from the start what they can spare for the fire fight, and what they must keep back, either in order to give weight to that, for the decision, or to meet counter-strokes. Therefore a brigade can no longer make use of Lines in the traditional sense ; but only lines, whereof the number, strength, distances, and formations must of necessity be different according to circumstances.

Extension has not the dangers its opponents say of it. For, 1st, as a rule the enemy is in no better case, except in prepared positions ; 2nd, Infantry and Artillery always fight along with one another ; 3rd, fire at 600 metres is already very effective. Now as far as the decision is concerned it is in many cases very possible indeed that at the later stage of the combat, even in open country, detachments in close order can be brought on, because with the adversary fighting-power falls off from hour to hour. At such times a relatively small corps in close order may give the decision (La Tuil rie), which it would never have been possible to attain by fire. But from this it follows again that the superior leadership must from the start adopt most vigorously the fire combat with Infantry and Artillery in order to attain superiority of fire. When this is won, then the decision in the future differs but little from that of former times, and for it there must remain reserves. Even attacks in front with an enveloping support must not be shunned ; however they must only be undertaken when superiority of fire is gained.

As a rule, the distance at the present day from the last fire station up to the assault will be considerably greater than before, and may amount to a distance seldom less than 300 metres. The treatment of this matter is difficult as regards the onset. There have, indeed, been different onsets of 200–240 metres at one stretch, but the consequent exhaustion does not recommend them. Still harder than the solution of this physical problem is the discernment of the right moment for launching the reserve; and here lies the most difficult problem for the brigade commander. If it have not followed on as the state of the fight required, it will come too late in the attack and benefit nothing. Whether it can follow without losing its power beforehand is certainly in many cases again questionable.

Now I proved, when analysing the example of attack furnished by the 38th Brigade, that fields of attack like that at Mars la Tour belong to the order of rarities and exceptions; that, however, a coherent guidance of the Brigade with the (insufficient) Tactical formations of that time (company column with 30 metres front preponderating) was possible up to the contour-line 780; that the Brigade, while using the Tactical formations of that time, got to a distance of 150 metres and less from the adversary, who was under cover, and even rushed forward so far as to become mixed up with him, who by reason of the gunpowder smoke becoming ever more opaque and resting heavy on the ground was finally quite lost to view, without the Brigade having up to that point become unfit for fighting; and that if other brigades, as at St. Privat, had been at disposition its defeat would not have occurred. A general Tactical inquiry cannot, indeed, be restricted to the fight of one brigade, but it must extend to several occurrences which are enacted on a width of front of 12–15 kilometres and more. Since, however, fighting-grounds of this extent without cover are not to be assumed, it will be a just presumption that the majority of Infantry will, until they reach the distance of 600 metres from the adversary, find more cover from the hostile fire than at Mars la Tour and St. Privat. How a brigade is to traverse that distance nobody can specify for every case and every corps. For the

determining conditions, adversary, armament, adverse Tactics, and country are different in each individual case. The solution, rather, must still be left to the intelligence of the brigade commander, in combination with the spontaneity of the subordinate leaders.

Though these reflections are based on psychology, actuality and experiences, yet they do not justify us in setting up any law which is valid for all cases, and to which we must hold fast under all circumstances. They must not be regarded as more than aspects which it is the business of the Tactician to manipulate. The best Tactical doctrines, principles, and forms, in injudicious hands, and without the motive power of the will, remain a dead thing, which should be put in a drawer. Where they are to be employed, and where deviations from them can and must be made, is not possible to be determined but by individualising leadership and by military endowments (ability). But the fundamental principle of all Tactics, to strive for dominion over individual bodies in the sense of coherence, remains as it was correct whether distant and mass fire be used or not, and on this groundwork must rest the things laid down by regulation. We shall not always succeed, but we must seek to recover guidance when lost, for only those troops conquer who can be led. So the fire fight of the present day makes very high claims on the efficiency of the individual man, and on the leaders of many men. And the majority will fall short of those claims, as in the case of all things strange.

But it is matter for thought that, according to the official account, the Congressists in 1891 at Placilla caused the Second Line to follow the First in close order at 500 metres.¹

As concerns movement, halts in the advance must as far as possible be avoided, for they are the nails in the coffin of sound Tactics. The French Infantry still to-day carries out its movements at the double, without intermission, till the object of the exercise is reached ; and Cisseÿ's Division was

¹ Particulars : *Die Entscheidungskämpfe im chilenischen Bürgerkriege 1891* Vienna, Reichswehr 1892, and Hugo Kunz, *Der Bürgerkrieg in Chile*, Leipzig, 1892, F. A. Brockhaus.

able to timely interpose at Mars la Tour against the 38th Brigade only because in marching it made alternating use of the double. Now the soldier must as a rule carry his field-equipment, and when he does so movements at the double are very difficult and involve great exertion; further, a regular double also produces disturbance and exhaustion of the physical powers. I am therefore against use of the double in the case of small handy bodies on the method that has been proposed, and that in all zones of fire. On the other hand, every corps must, all the more at the present day, be able to move quickly. Only we must not produce undue hurry, as at Mars la Tour, by starting a rapid step which is more running than walking, uses up lungs and muscles, and brings men 'pumped' against the adversary.

After the war of 1864 General v. Moltke published a work: 'Remarks on the Influence of Improved Firearms on the Fight,'¹ in which, among other things, it is said: 'We may assume that at a range of $\frac{1}{4}$ mile² (not quite 1,900 metres) columns in close order under fire of a rifled battery cannot hold out. The adversary is compelled to deploy, and finds protection only in the scattered formation and in movement.'

It is there further said, concerning fire from breechloaders: 'Under ordinary conditions and in the *bataille rangée* the decision would not rest with fine shooting, but with mass fire at those ranges where the unavoidable errors of estimation become harmless.'

Who in 1865 thought of the perfecting of firearms of Infantry and Artillery that has been reached to-day in all hosts of the great European States? This was already in 1870 in the Infantry such that, under conditions like those at Mars la Tour and St. Privat, its mass fire produced, at a range almost equal to that of the Artillery, a material effect that was sensible and a moral effect that was great; and in future this will be the case still more. That had of necessity an extended influence on 'formation' and 'movement.' But the 'scattered formation' must not

¹ Berlin: Mittler & Son, 1865.

² [*I.e.* the German quarter-mile.—TRANSLATOR.]

degenerate to impossibility of guidance; the 'movement' must not become a hunt; and 'seeking cover' must not become a theory which paralyses will, initiative, expression of force, makes personal example an impossibility, and surrenders Tactics to license. The newer firearms of the Infantry are in general less calculated for fine (bull's-eye) shooting than for flat shooting; that is we have striven for and attained the greatest possible fire-swept area, and the fire is operative not only at short but also at long ranges. Count Moltke's sentences, therefore, have with time gained in validity. But when another clear spirit (Captain May, who fell at Amiens) said in 1869 that rifles with flattened trajectories would as a consequence allow the possibility of shooting with horizontal aim and with effect, he reaped scorn and hostility.¹ Upon this were also, in part, founded his Tactical proposals, which have in the meantime passed over into practical life.

The defender, if the choice of position remain in his hands, will take one with large expanses for fire; but he cannot always succeed in this, on account of the adversary preventing it. Now we have seen in the case of Vionville—Mars la Tour that it was attainable for the defender, even under circumstances of surprise. And thus Tactics must always reckon with fire at long ranges; and the endeavour of the assailant must be directed to reduce its effect by adroit advance and quick movement, while the Infantry, thrown forward to the fire fight and gradually reinforced, acting with the Artillery, engages the adversary, shakes and shatters him. I consider the advance by rushes can only be performed where there are many leaders and small detachments, and at short ranges. I do not believe that where these preliminary conditions are absent a body of men can successfully be made to execute more than three rushes. How far do we get with it? Where lies the limit for commencement of the rushes? I do not believe that a considerable body can, while fighting on the method by rushes, at the same time preserve coherence.

¹ The idea of the horizontal aim does not, indeed, originate with May. Already in the Revolutionary wars the French generals brought it into practice, because they had observed that in the excitement of the conflict the horizontal aim is one of the few things that the man is able to attend to in shooting.

I do not believe in the possibility of accomplishing fire and movement as exhibited in the 'rush tactics.' I do not at all believe in it where such scope is allowed the inferior leaders in 'choice of ground' as has been done in the regulations, this enticing them into license. I consider these Tactics the outcome of the study. I would sooner resolve to let the whole Infantry, in lines in single rank, crawl 'on all-fours'; in this way one would at least get on. It must, at all events, be permitted within the brigade to make use of all means which render possible an approach to effective ranges. Disparities and ridiculous things must not furnish any ground of impediment. How much that appears on the battlefield would be ridiculous if it were not so serious! But from this now we ought not to conclude that the whole Infantry must be drilled to go always recklessly on to a range of 600 metres; that would be a ruinous scheme. Rather, it must vindicate the principle of keeping 'at one stretch' as far as possible. This principle only attained its full vitality by the acceptance on principle of the open line in single rank. In actuality losses will specify the moment where a halt must be made, so as to work one's way on to shorter distance from there by rushing or creeping. Above all, I believe that the 'attack by rushes' robs from the spirit of attack much of its decision and animation. This 'sophistical dealing with country' must develop pedants; vivacity must suffer by it; and he who asserts the impossibility of carrying an attack through to effective range 'at one stretch' is thinking more of the drill-ground than the battlefield. On the latter we require besides all moral levers. An attack in grand style has in it something extraordinarily elevating; it carries one away with it; the 'rush tactics' are absolutely denuded of this influence. These are not even tested. Of the former we at least know what may be expected of it. The Congressists are said to have advanced by rushes at Placilla; yet I cannot believe it. This advance assumes a Tactical school, which with the troops, many of whom had only served 2-3 weeks, cannot have existed. The assertion is also contradicted by the arrangements for the attack, according to which the reserve followed in close order at 500 metres, and the First Line

was not allowed to fire till at 400 metres (at Placilla). Thus the same Tactical phenomena appeared that are observed in the case of all troops like Militia.¹ If the Congressists did conquer, it was due to the better leadership, to the superior armament, and to the adversary. But there is no doubt that opening fire late had come to light as a necessary result of the experiences of Concon, in order to prevent running out of ammunition again. Nevertheless the object was not attained.² In general 150-200 cartridges per man had been fired off in 2-3 hours on both sides. That the better weapon produced also better fire results is taught by the specifications. According to them, the Balmacedists lost at Concon 20, at Placilla 30 per cent., the Congressists 10 and 16 per cent. respectively. On the whole, the Tactics on the side which was better armed consisted herein: advance of skirmishers at one stretch up to 400-800 metres without firing, here opening fire, the reserve following at 500 metres. No admissible conclusion can be drawn from this, for Balmaceda's host was of very little value.

As regards the commencement of fire on the side of the assailant, I cannot alter my views in consequence of the small-bore rifle. That one apprehension which relates to running out of ammunition is, indeed, diminished by the fact that the man now carries with him 150 cartridges, instead of 100, which he did up to 1890, but even that does not preserve us from the danger of ammunition consumption, to which enticement is offered by the magazine rifles. Now, although the later commencement of fire does not protect the corps from running out of ammunition, yet it is a further means to reduce this danger. To the later opening of fire I am further determined by the circumstance that early commencement of fire is the greatest enemy of all vigorous pressing forward. I am self-evidently leaving out of the question those cases where volleys can be employed. So, if specially favourable results are not to be expected, we do better to abstain

¹ [An arbitrary view; cf. p. 324. The Tactical capacities of Militia obviously may vary as much as nationalities do.—TRANSLATOR.]

² See the accounts of Tel Canto and Körner in the writings before named.

from it, to try to get forward under cover, preserve our ammunition, and take up the fire combat at those ranges from which we may anticipate an adequate Tactical result due to the shooting performances of the rifle ; that is, as a rule, 600 metres. The cases where fire at longer ranges may be of value will not belong to the class of exceptions ; but in general the assailant will have to press forward to about 600 metres, for from here onward the Infantry will come quickest to a superiority of fire. If the advocates of distant fire recommend the fire fight already at 1,200 metres with progressive strength, this may under some circumstances have utility. But to assume it as a rule would mean to depress extraordinarily the Infantry's power of attack, and to diminish and endanger its whole fighting-power for later stages. The partisans of distant fire (over 1,000 metres) are at the same time those, as a rule, who do not think much of the effect of Artillery, and, even though they do not say it, still live in the quiet conviction that the Infantry will do the business alone. They are Infantry Tacticians, but—no Tacticians ; for these must always have in view the three arms.

If, again, it were wished to fix 600 metres on principle as the point for opening fire, one would thereby forego several advantages the weapon possesses which are of a material and moral nature. To use a rifle that up to 1,000 metres renders quite remarkable results in hits, in the same way as one which possesses this property up to 400 metres only would certainly be preposterous.

Precisely in our host there exists an excessive confidence in the Infantry by itself. In the battle it is no longer the chief arm at all stages up to the decision ; without Artillery it often is able neither to get forward nor to hold its ground ; it is therefore thrown on the Artillery for resource, and this again on the Infantry. For by the great perfecting of the gun, projectile, training, and so forth, the Artillery has advanced with giant strides. The Artillery, in consequence of the smokeless powder and the enhanced effect of the projectile, has become more independent, and more capable of resistance. And it can now, without embarrassing the Infantry of its own side, execute the combat till immediately before the decision ;

whereas often in 1870-71 the troops of its own side were put into considerable danger from its firing over their heads. Having always an open view, it can always see, always aim, always observe, and better hit. For the same reason only has the guidance of fire become possible which answers to higher demands; so that its fire can be united against the decisive points, a thing impossible before. And certainly experiments and experiences must not yet be held as concluded. On all these grounds the fire fight at long ranges must, as a rule, be committed to the Artillery. Naturally exceptions will here appear. And the Infantry must give up the belief that it can by itself furnish the introduction of the battle, the execution and decision of it. That belief has cost us bitter lessons and many men also, and against breechloaders it produced little result or none at all. If also one take a view of all the greater fights against the French Imperial host, 1870, then one finds it was only at Sedan that the Artillery was throughout utilised in a way that was about adequate to modern Tactics. There its fire shattered the adversary, and it was possible, trusting to the effect of it, for the Infantry to be reserved.

At Wörth, Vionville and Gravelotte our Infantry was generally brought into action too early, and the Artillery too late. But even then (IIIrd A. at Vionville and Guard at St. Privat, VIIth and VIIIth at Gravelotte) the Artillery was the real supporter of the fire fight at long ranges, as soon as it came massed on the scene. Further, its operation under the very unfavourable conditions at Vionville and St. Privat was of conspicuous general importance for Tactics, and of incalculable effect for the situation of the Infantry of the IIIrd and of the Guard Corps. The Infantry, then, must commit distant fire as a rule to the Artillery.

An Artillery which only commences fire with the launching of the principal forces of the Infantry cannot have shaken the adversary up to that moment of time when ruin is brought on the Infantry by delay, and when the Infantry must seek to bring about the decision as soon as possible. To-day this is still more a law than it was, because, according to human calculation, the consequence of enhanced fire effect will be,

perhaps, that the decision will occur, under some circumstances, more quickly than before. For a well-directed fire from Artillery and Infantry together will not be endured now by any corps for so long a time as it formerly could be. Therefore let us deploy the Artillery as soon as practicable and as strong as possible. If it succeed in coming thus into position without being fired at, and in opening fire itself sooner than the adversary does, a principal part of the work is already done. So all efforts must be directed to that. Certainly every Artillery at the present day requires that, from the beginning, Infantry be thrown forward about 5-600 metres, if it is not to be already hindered by the hostile Infantry fire from taking any active part in the combat.

What form in each particular case is assumed by the leadership of the troops of the rear lines depends on the situation, and in this one will not be able to forego exact points of direction, and observation of the areas prescribed. If the fighting-ground be clear the distances of the lines must increase; if it be better furnished with cover, one may diminish them in accordance with the degree in which the approach is so covered. On clear ground, however, one can have no longer any other choice than opened lines in single rank with considerable distances between them. Now, since the greater shooting-performance of the rifles makes the fighting-line of skirmishers also more capable of resistance, the distance between Lines may be enlarged without danger. But, nevertheless, the need always remains for exercises, in the country, of considerable bodies in close formations; especially in traversing woods one must hold to Tactical connection. In battles a great part is played by woods. I mention only that of Maslowed and the Bois des Géniveaux. And their employment for approaching under cover, as was done by the 27th Brigade at Probus, will in future probably be of more frequent occurrence. There is, then, opportunity to get advantage from closed formations and to overwhelm the adversary with a smothering fire at comparatively close quarters. Precisely that which the 27th Brigade did at Probus to veil its approach is, under similar circumstances, practicable in future despite the small-bore rifle.

Again, breaking the connections of the troops must as far as possible be prevented. Only we must not mistake that mixing up inside a given area, which is inseparable from the combat by masses of skirmishers, for the dispersal in different directions while fighting-areas are being crossed, whereby fragments of different bodies, without any coherent aim, come into confusion. This circumstance, indeed, is chiefly connected with the question whether the divisions and brigades are up to strength; at any rate, care must always be taken to provide an adequate reserve. For he who has seen the condition of troops which have been unsuccessfully engaged will grant that the best rifles in the hands of men physically exhausted and morally spent are no better than none at all. In 1870, battalions, regiments, brigades, divisions, and even army corps, were hurled in confusion; at the first shot everyone rushed forward, as if the shot announced that moment when no more orders need be observed, and no more need be given. Commanders of battalions, regiments, brigades had, for whole hours, not a man left under their control; the soldier regularly fought the battle. Generals of division had not a company at their disposal—even in defeat—since their brigades were crumbled up on the most heterogeneous points. Generals in command still remained at the head of two or three small, melted-down battalions, while, in front, fate hung on a thread by the hour. In such Tactics we only find lieutenants and soldiers necessary; with these, however, no great finale is attained. But that always requires the superior leadership that knows what it is about; the launching and guidance of masses with reference to a specified end; and, within these general boundaries, a coherent method on the part of the Infantry brigades.

At the capture of the enemy's position, the chief distinction that will become evident between present and former times will be that its distance is greater from the last fire station. But whoever has viewed, for instance, the fields of action of Kissingen and Wörth, will say to himself that, in many cases, the same phenomena as here must recur in the combat for the key of the position; thus, that it is possible to

get on to a range of 80 and 100 metres. Especially is the capture of Froschweiler typical for the leading of the reserve in rear (Starkloff's Wirtemberg Brigade), the impulse to the assault, mixing of the troops of 4 army corps in the place taken by storm, but also the rapidity with which they were again assembled. This example contains simply all doctrines; and thus for a successful attack one need refer only to it. It is nearly approached among examples of great situations by the attacks on St. Privat (north), Loigny, and St. Quentin; yet, in future, the last storm will have to be directed rather against artificial keys to positions than localities. But this does not alter the principles for the performance.

Attacks that turn out ill will only seldom find their nearest halt with Infantry in rear, but almost exclusively with the Artillery. On this ground I am opposed to accompanying by Artillery the Infantry attack. Changes of position, because they are early seen, must be avoided as much as possible. Apart from *morale*, no other reason appears also for accompanying it; for the Artillery, on account of the smokeless powder, is on the one hand restricted to remain in an effective position, and the improvement in the principal projectile (shrapnel) permits a great effect at such ranges that it becomes now needless to accompany the Infantry attack. Nevertheless it may, in particular cases, be useful. The rapid occupation of the stormed position by Artillery is, however, of itself prohibited on many grounds.

For the Cavalry, a fine prospect of successful results may be offered by that moment when an Infantry attack is repelled, especially if the Cavalry break forward from behind cover (St. Quentin). This is taught also by various occurrences at Vionville. The Cavalry must, then, for such cases try to find favourable points for forming up. A fortunate Infantry attack enhances the successful results, as Placilla teaches us, to immeasurable degree. From this example there is much to be learnt.

IV. OF THE MORAL EDUCATION OF THE CORPS

To recognise the Tactically ripe moment is not always easy. The adversary may deceive us therein, as he did, for instance, at Vionville and Gravelotte; and other causes may lead us to ourselves make mistakes therein. Then the troops must hold out, for every piece of ground won must on principle be maintained, and in this is exhibited the moral efficiency of the corps. At St. Privat the Guard held out 8 hours under the devastating fire; certainly it had no counter-attack to resist. The 38th Brigade, which was without support from other Infantry and without sufficient Artillery, held out for 30 minutes at 80-150 metres from the enemy. With this I oppose those who assert, 'no corps holds its ground under grazing fire, it either presses forward or backward.' That is a ruinous doctrine, especially to-day, when grazing fire begins already at 600 metres. By it indeed the demand must, in greater or less degree, come to be made upon every Infantry that it hold out; otherwise a fight would truly be inconceivable except outside the grazed zone! But I doubt the possibility of a superiority of fire, which shall bring about the decision, being won at more than 600 metres.

Then losses must come into the bargain; and the corps must in peace be prepared by education to bear these with resolution, for this strength of mind is the most valuable thing in the man, and in the inferior leadership. Its development forms the field of psychological education of the troops in peace; only one must here guard against taking for the essence externals, such as smart manual exercise, firm steps, loud answers, &c., and against drawing conclusions as to the moral efficiency of a regiment because it comes on the

scene exhibiting these qualities. A corps' moral efficiency is less the result of practical exercises than it is of instruction, directed with understanding and wisdom.

Now the 38th Brigade used in part, at that time, the most dangerous Tactical formations; yet it pressed forward impetuously till it mixed with the enemy. What does the example teach? That, before everything, the inward (psychical)¹ education of the corps must be fostered, because it outweighs all else, and to it I ever come back again.

No occurrence of the last wars can be placed beside the death-defying blow of the 38th Brigade.

Kottwitz' Brigade at Loigny and Skobelev's attack in the third battle of Plevna come near to that instance, but do not reach it, because on both occasions the general conditions were more favourable for the assailant.

The deed of arms ended with a terrible defeat, but it is instructive in so far as it shows what spirited regiments can perform.

And, passing to the material side: if the greatest military fame consisted in loss, the 38th Brigade would have a claim to it. Of all German troops, it suffered the greatest losses under fire in absolutely the shortest time in comparison with other bodies. From the psychical (moral), as from the material and Tactical point of view, therefore, the event is equally peculiar and remarkable.

Many small bodies in close order are harder to direct than few large ones. It is still more difficult to do what will, however, be the rule; that is, to direct brigades that fight entirely as skirmishers. The unmistakable inconvenience for the superior guidance must be so far as possible removed by high Tactical culture of the leaders and moral education of the men.

If the influence of the superior leaders within the range

¹ [*Seelische (psychische)*. It is hard to find any adjectival form which expresses better than 'inward' the apparent meaning of the whole context. 'Spiritual,' with its religious implications, appears somewhat too specific; and 'mental,' though perhaps including all, hardly indicates with precision the points the author insists on. Later he uses the phrase *psychischen (moralischen)*, as if each of these words in some degree expressed the meaning he desired.—TRANSLATOR.

of devastating fire is of compulsion a restricted one, in what, then, can we find compensation for this deficiency? I have for that assigned already:

• 1st. Careful and thorough training of the man as a skirmisher, and in shooting;

2nd. Development in the skirmisher of the feeling of self-reliance, consequent upon confidence in the weapon and in the thorough training;

3rd. A higher Tactical qualification in leaders in all inferior ranks;

4th. Multiplication of the inferior leaders;

5th. Before going into the fight, clear and distinct orders to all officers, down to the captains, as to the object; and the effort to prevent confusions of idea during its course. Yet all these demands are of a purely mechanical kind, or they appeal only to the powers of the understanding; and if both of these fail to respond they remain without avail. Therefore endeavour must be made to preclude a failure of them, and the means are found only in the realm of *morale*. So far as the officers are concerned, one need hardly indeed refer to this, because they are all more or less filled with an idealism for which they sacrifice everything. However this does not suffice, but we must strive to attain in the mass of fighters also an idealism, at least to a certain degree. If in the case of people that have a higher development and powerful natures (officers) this may have very different causes, in the case of the man the most natural causes must be observed. These are power of faith, national feeling, love of fatherland, love for the corps. Upon these four domains, as a foundation, the whole education of the man must be systematically built up, so that the man learns to distinguish between virtues and infirmity. But that is not easy, because the rank and file are at very different points of development in training, sentiment, and civilisation, and it demands, besides, time, patience, and affection from the officers. So it will be necessary to strike particular roads to this end, according to what the troops are, and seize means to enlarge the conceptions of the man through instruction, to stimulate and enhance his receptivity for what is lofty; in short we

must morally educate him, in which process regard must be had always to the extension of his powers of understanding. The means of making progress in each department consist, first of all, in awakening in the men delight, love, effort and joy in the calling, enlightening their understanding upon the sublime problems to which they are called, and strengthening their hearts with the numerous instances where these problems have been apprehended by the fatherland's heroes, with marshal's bâton and with rifle, who have given their lives therefor. This can always be done. For it there is in the military life opportunity to be found everywhere, even in practical exercises, by interweaving and minutely depicting this or that example. The chief matter will, indeed, have to be mastered in the instruction; and this will only be done by officers who understand how to render, by speech or representation, something rational and engaging on the subject. For, as much as can be herein attained by skilful officers, so much can be spoilt by those unskilled, because feeling is very sensitive and requires careful and delicate treatment. While in this way powers of understanding and feeling are awakened, a kind management, from which the man comes to feel that he is getting benefit, must be employed to stimulate ambition. For we need this for everything, and always, and the whole education must rest on the conception of honour. In it the endeavour and the life of the soldier must be merged. The soldier must not be able to separate his own honour from that of the corps, the host, and fatherland. It is ever the sensibilities for pride and shame which, precisely in the case of soldiers, because with them everything is transacted in public, become of so great moral influence on the whole character of the host and its conduct in the battle. And no day should pass without the officers reflecting on this and acting accordingly. True, some of the rank and file are still to-day 'indolent' in Frederick's sense; but the majority are indeed susceptible of a superior and noble view of the duties of their calling. This must be made the most of by wisdom and energy, and in this matter hours of instruction are more remunerative than days of soul-killing drill, though I should not like to see sacrificed one jot of smartness. Now, even

though the taste for what is lofty and heroic is far from creating heroes, yet it puts the means at hand of working on the men's pride and shame, after awaking and refining this taste. Thus we are able to animate their feeling of honour, their power of will, and the consciousness of responsibility before God and men, before the king, fellow-citizens, and indeed towards their family and their own property and belongings. For that there are sufficient means to be found; but, since the enumeration and discussion of them does not properly come into this work, I pass over that and proceed.

If the soldier can be made susceptible to honour, pride, and shame, then courage also can to a certain degree be instilled by education. There are, indeed, examples in history where even natures not of themselves courageous have, by reason of injuries to their honour, risen to heroic resolve, to great energy, and devoted and notable courage! But one always observes that they were men who had a belief, however singular this may have been in the special case. And so I hold the conviction that a careful moral education finds expression in every corps on the battlefield; that only with a corps which is susceptible to noble emotions can one satisfy the claims which the modern fire fight makes on the men. Other means at least do not exist. So we must make our whole training and education dependent upon this. And if I took trouble in exploring my own nature, to recognise that the soldier's courage can be educated, I do not understand why that should not also be possible in the case of men of greater position.

The same result will not be attained with all. With a part, nothing of the whole education of peace time will last on the battlefield. It is the class of the brutes. With another part, will and weakness will be in conflict with one another, and the conflict will end in favour of the latter. The third part, the smallest, will stand the test. It is the result of the inborn attributes and the further education by school, family, house and society. It is the heart of the corps, and its combination with the officers will succeed in 'causing' also the second class 'to fire the rifle.' So the bad phenomena which the fight of the swarm brings about for human nature

are certainly not misjudged ; but it would be faulty to reject the method of fighting for the reason that they do exist. We must only demand that everyone know exactly the weaknesses and the dark sides of his calling ; the officer, those of his Tactics, in order to counteract them with understanding. In Tactics they will never be entirely done away with, for that would mean doing away with the human being. Besides, there are spirited men everywhere. Nature does not for them make choice of any special class of men, and leadership ought to correspondingly honour them where they show themselves. That strengthens the military spirit, and exercises a stimulating influence on all well-disposed natures.

Every fighting-ground requires its special measures ! Obstacles of every kind make themselves felt, and produce interruptions, dislocations, and irregularities. To overcome these, and, amid the crowd of determining conditions that cannot be foreseen, to keep one's eyes open and clear for the methods that lead to Tactical superiority, is the aim of the high Tactical culture of the leaders. And herein first appears the difference between mechanism and understanding of the situation : indeed, the value of the personality, which ever remains the principal thing.

One may take what innovation one likes, and choose any domain of knowledge that bears on it. The man in the use of the novelty easily overshoots the mark, and thereby inflicts on himself more or less sensible wounds. Mind runs ahead of the essence (speculative theory) ; and experience, first, becomes the school of instruction which teaches what advantages the new contains. Nothing, indeed, except war can offer this experience in full degree. However, in peace much can be done so as to be prepared, if the innovations be followed up with understanding, and without prejudice for principles. But in no domain do mistaken speculations incur such fatal retribution as in that of Tactics, and therefore one should exercise more forethought here than anywhere else.

When one of the greater hosts introduced weapons for distant shooting, others, vieing with it, were unable to stay behind. They were obliged to tread the path of progress. Points of view of *morale*, which are always the most important

in the conflict, themselves dictated this. Only, it must not be overlooked that the great thing is not the shot, but the man who shoots. And, in the majority, this man remains, despite higher cultivation and higher moral position, the same, as regards natural egoism and an equally comprehensible indolence. Hence, too, that corps only will conquer which is led. That this leadership in many circumstances costs more sacrifices than of old is certain. He who falls dies for the fatherland, for his calling, and also for his egoism—this time a noble one.

In war, that which is highest must be sought in the Psyche. On it must be constructed the principles of fight and the points of view for culture and leadership. Using them in combination with experience, we shall then reach right ideas. The assailant comes early enough to the point where every rule is shattered, its place being taken by irregularity; and in the chaos, which is inevitable before, in, and after the decision, must stand the man above irregularity and confusion; he must still be able to evince his will-power directed by understanding, to bend again to his authority as many as may be of the liberated forces, which to bring forward under leadership is the other side of the difficult problem. If these men command in the combat, then our colours will flutter, as they did before, on a captured height. But endeavour must always be made to diminish those many accidents of the fight which can never be entirely obviated. If, on the other hand, you wish to remove the fight into the night, so as to elude the moral and material effect, you regularly induce those accidents; and this must be opposed by every person of understanding.

I have repeatedly propounded to myself the question as to the ground of our philosophy of loss. Does it find its foundation in the fact that we no longer look at things with proper view? or have we become weaklings in comparison with our progenitors? or is the better human material of the modern hosts the cause of the outcry that always occurs after a battle? or is it, finally, the moral effect of the breechloaders which has set so many springs in movement?

In regard to these points many hypotheses can be set up.

I forego doing so because we already suffer from an excess of them. Only so much is sure, that a certain degree of civilisation at once creates effeminacy and strengthens the egoism which grows up in comfort or strives after good-living, whereby manly power and devotion are restricted ; it is sure also that the deafening fire of breechloaders exercises, on the immense majority, an overpowering moral impression. One sees, then, that the chief part of warfare at the present day falls Tactically as much into the sphere of the will as it has always Strategically resided there.

For those who should upbraid me with having fallen into psychological reveries from psychological demands that were justified, I have a short answer : ‘ Let everyone consider that all which we possess and rejoice in comes from a long life of suffering of our progenitors. They have given us much, all. They require just so much from us. They gave us the body, and protected it ; and fashioned and united our soul. They demand also our body and soul for themselves. However freely we move our wings, as individuals, to these creditors are we responsible for the use of our powers, equally whether fate, as a gentle master, peacefully give us our own way, or whether it call upon both, body and soul, with authorised monition.’ The status of soldier, which does not form the school of virtue, is not fulfilling its position in the state, and the unintermittent fostering of all ethical properties of the men does in the last resort benefit Tactics on the battlefield. The mass is not converted, and that is not necessary. But convert we shall, and that is enough for our object, and rewards the pains.

THIRD PART

TACTICAL INFERENCES

I. SOMETHING CONCERNING TACTICAL TENDENCIES

IF before 1870 the shooting-performances of the Chassepot had come to the general knowledge of the army, the Germans would not have gone to the war in uncertainty as to what would meet them. The shooting-performances of this rifle could with facility be established in circles authoritative on such matters; for already in 1868 they possessed it, with its proper ammunition. Yet, instead of care being thenceforward taken for the spread of correct ideas as to that rifle, the mistake was made of withholding from the pupils of the shooting-school and from the army in general the considerable superiority of the Chassepot's performances over those of the needle-gun.¹ Therefore it is not upon the troops and the officers who were present on active service that the blame primarily falls for so many losses, which would have been easy to avoid, which often brought about, too, not the smallest result. But, nevertheless, the majority of the troops had in other ways gained much experience of the truth; yet, as not the smallest event occurred, at least in the direction of timely alteration in their training and Tactics in accordance with this truth, the Infantry in 1870 was in a very disadvantageous position. This became still worse when the correct views that were disclosed in the 'Tactical Retrospects' (opened line, horizontal aim) were nipped in the bud by what was called the 'official' rejoinder of Bronsart and others besides. The troops equipped with a rifle of less merit, and feeling that in face of the Chassepot

¹ *Wintertagswirklichkeit*: Berlin, Militär-Verlag, R. Felix, 1888, pp. 3-5.

the customary Tactics could be no longer practicable, were, when the war unexpectedly broke out, hovering, in a sense, between heaven and earth; and it was only after the bloody experiences of the August battles that the Infantry began to feel its feet on firm Tactical ground; which might have been easily found before the war, if the things known concerning the Chassepot's performances had been adequately disseminated. There had been two years' time for this, and the wonders of Mentana were facts! We must in truth hardly speak of a superiority in mode of fighting on the part of the German Infantry in the August battles. The Germans conquered principally through superior Strategy, whose importance was so great that, despite antiquated Tactics, victory fell to the guidance of the German host. This may be taken as a proof, by the way, how much the fortunate result of a war is favoured by superior Strategy.

Meanwhile the page has been turned in Germany. And it may be said the guiding authority of the host and the military writers have done everything to disseminate true and correct conceptions as to the contemporary effect of weapons; perhaps not sufficiently as regards knowledge of the effect of Artillery fire in the case of Infantry and Cavalry. It remains now the affair of the troops to think out that which has been shown them in these different ways.

Wherever one looks in military history, ignorance and pride are constantly the chief causes of defeats; and these two things are in a remarkable way ever found together in all nations. In this they are as much alike as one egg to another. However, the spread of information is not of itself enough. But when the results of experiments and so forth are won conclusions practical and Tactical must be drawn from them for the instructions, and for the principles of the fight, which are very changeable. For the quantities scientifically found offer in peace important fixed points for a seasonable further construction in all that which concerns the unfixed side of Tactics. But the proper corrector of theoretical researches and of practical experiments is the experience of the battlefield. So that must be constantly and thoroughly taken into consideration if we are to avoid errors.

Since Moltke came forward with his book¹ there has been no cessation of the Tactical contest. Then, through May's 'Tactical Retrospects,' the points of controversy got a footing in all great hosts; yet the working out of Tactical innovations is, according to experience, but a slow process. In Germany more than two decades elapsed between the appearance of Moltke's work and a rearrangement by regulation of the Infantry's mode of fighting, notwithstanding that the war of 1870-71 had demonstrated the untenableness of the mode of fighting employed till then, and immediately after the war the fresh arming with the Mauser rifle began!

Was this no contradiction?

The German Infantry in 1870-71 did not know any normal method of attack. It had, indeed, broken with the Tactics of the Lines² of that time; but it had not further developed the Tactics of company columns in the sense of the combat by masses of skirmishers. On the outbreak of war it had no method of attack at all. Rather, it was only during the war that a such thing evolved itself, which was, however, of necessity inadequate, and also may not be called a normal method. Therefore the features of insufficiency that showed themselves in almost all attacks in great style cannot be laid to the charge of training in a normal attack. On the contrary, it may be assumed that had the Infantry possessed a normal method suited to the time, and been proficient in it, it would have fought with much better fortune. So the reason why the attack Tactics failed in so high a degree consisted in the general ignorance of the German Infantry of how to fight (to attack) in masses in a way suited to the time. And it could not so fight, because in peace it had not been practised in a method that was adequate, while the play of the method itself was limited to detachment Tactics. Certainly we have three examples of mass attacks in which, although the course of events was diverse, the coherence of a method, whose roots were even antiquated, was in high degree maintained. The first was developed at Mars la Tour; the second concerns the attack by the Saxons on St. Privat (north); and the third the Kottwitz Brigade at Loigny. For

¹ P. 208 ² [The German phrase here is *Treffentaktik*.—TRANSLATOR.]

the rest, attacks on advanced points are not alluded to, because we are dealing only with Tactics in the pitched battle. Where, on the other hand, the Infantry attack was conceived in the sense of the modern Task method, it everywhere suffered defeats. Especially does this appear at the Mance Ravine on the 18th of August and in the front at Wörth. Also, in the case of the Infantry of the XIth Army Corps at Wörth, in the attack, the principles of a coherent method are to be clearly recognised ; and among the causes that produced this day's great success is the fact that the highest leaders of the coherent bodies of troops, progressing from halt to halt, possessed of skill, and knowing what they were about, held fast to that method.

Under such circumstances there should not properly have arisen Tactical tendencies so divergent from each other as those we have experienced and still encounter. The old regulation instructions sufficed, indeed, no longer. The Infantry wanted new regulations, but these should grow from the reality of war. The Regulations of 1888—print of 1889—are certainly in many points suitable to the time ; but we have with these fallen from one extreme into the other. Till then all powers rested simply with the higher leaders, and the lower lived in a perpetual Tactical contest with them as to their powers and their sphere of operation. The regulations that were till then authoritative took their just claims not at all into account ; the controversy had to be adjusted. However, by the Regulations of 1888 this was done in a way that put the higher leaders at a disadvantage ; for the execution of the combat was shifted to the initiative of the subordinate leaders, and therewith all possibility of a coherent method was surrendered. With this comes simply the cessation of all Tactics.

How have we come to this ?

The most important criers in the contest for regulations suitable to the time are, in order, perhaps, so far as they have appeared in literature, Moltke, May, Boguslawski, Schlichting, Liebert. The oldest and most important opponents, less in principle than in regard to special proposals, are Bronsart, Scherff, Meckel. The former tendency has recently been supported by Hoenig and Keim ; and quite lately Malachowski

has gone far beyond the demands of this category, as besides has the 'Militär-Wochenblatt' of the last two years.

But in general all entertained the view that new regulations were necessary: a demand that was put more conspicuously forward as firearms were more improved.

In course of time various fusions, and reactions, took place. The late General of Infantry, v. Bronsart, who so long had thrown the weight of his voice into the scale against new regulations in May's sense, and from all his utterances must be taken to have been a chief representative of a coherent method, went over shortly before his death into May's camp¹ and repudiated the normal attack; that is, here, the coherent method, though the two things are somewhat different.

Meckel, in pursuance of the important principle of *morale* during the execution of the combat, arrived at the demand for closing together extended lines; ² he became a reactionary.

Boguslawski, who had so long and energetically in several works and numerous essays stepped in on behalf of a training and a method of fighting suitable to the time, saw his demands so far surpassed in the Regulations of 1888 that also he appears as a reactionary, without being so; for this general, upon the whole, neither changed nor altered his position. It is just the same with Hoenig, with Keim, and indeed with Liebert also. They are all opponents of a normal attack, so far as one understands thereby a fixed regulation scheme for the execution of the combat, which had to be always adhered to. But all are at one in the principles that forming up, deployment, and execution of the combat form three different stages, the one following the other according to time and space, and that for them there must be certain things settled by regulation, so that in the attack by masses we may be able to attain coherence in method. All of them demand but one formation for the movement, the opened line in single rank; all demand one formation for combat, the swarm of skirmishers; all demand but one species of fire, skirmishers' fire. Boguslawski and Hoenig recommend, besides, fire in the movement.

¹ See *Betrachtungen über eine zeitgemässe Fechtwaise der Infanterie*. Berlin, E. S. Mittler, 1891.

² See *Sommernachtsstraum*, E. S. Mittler.

The Regulations of 1888 intensified the dispute. They gave to the Task combat the stamp of regulations, by raising into a principle the fullest freedom of subordinate leaders in the execution of the combat, while abandoning coherence of method. The oldest and most tried champion of the coherent method, General v. Scherff, as years went on, moderated his demands as to regulations, in presence of the perfection attained in weapons; and in the end his proposals came into fusion, as far as on the whole was possible, with the views of Boguslawski and Hoenig. To the Task method he opposes not the normal attack, but coherence of method.¹

Scherff's expositions, up to the work numbered 3, lacked the deductive method, inasmuch as he had not in his writings, till then, set out from the Tactical experiences of the battle-field. He contended, rather, for principles that he had adopted in general from warlike practice, and he developed therefrom his system of coherent method. Now, so long as Scherff himself, or others, failed to put forward any proofs from actuality for the correctness of this system, the opponents of Scherff, and so the adherents of the modern regulations, were able to use against him the reproach of hoary theory; and now opinion stood against opinion, principle against principle. Into this conflict of opinions Lieutenant-Colonel v. Malachowski² thrust himself with demands of the most radical kind. He rejects every normal method (coherent method), and pushes to extremes the 'principles' and points of view of the Task method: according to him the execution of the combat is a conflict by masses of skirmishers in a sort of hordes, in the hands of the subordinate leaders. Thus he agrees with the conceptions of General v. Schlichting, and is, with him, the most radical representative in literature of the Task method.

Meanwhile Hoenig turned his attention to the phenomena of the battlefield, in the sense of his 'Inquiries concerning Tactics,' in the 'Twenty-four Hours of Moltke's Strategy,' and

¹ 1st, *Reglementarische Studien*, Berlin, 1891-92, A. Bath. 2nd, *Praktische Taktik und taktische Theorie*, 1893, R. Felix, Berlin. 3rd, *Unsere heutige Infanterietaktik im Spiegel der Augustkämpfe 1870 um Metz*, 1893, R. Felix, Berlin. ² *Scharfe Taktik und Revuetaktik*, E. S. Mittler.

in the 'Combats about the Quarries of Rozerieulles.' And by searching investigations he reached the conclusion that the combats of 1870, had they been carried on by troops of all army corps in the sense of the modern Task method, would each and all have been failures; and that therefore this mode of fighting cannot lead to the goal.

In these expositions General v. Scherff perceived a desired material for proof of his conceptions. And he now, for his part, followed independently in his further studies the course adopted by Hoenig; and was thus able to bring forward in 'Our Modern Infantry Tactics' the proof that his views were correct down to the very details. Whatever may be thought by people in powerful positions concerning this, and concerning the Regulations of 1888, my opinion is that these have made regulation what already in 1870 proved to be impracticable, the Task combat; and precisely thereby has a normal method been attained in fact, which however it was desired first and foremost to do away with as being harmful. Now I am convinced that the Task method is not 'suited to the time,' and must be abandoned; that is, the regulations must be altered, and a return must be made to coherence of method, unless the execution of the combat is to devolve on the arbitrary will of the subordinate leaders.

With this are closely connected the questions of distant or short-range fire, of approach up to the operative range, of attaining the superiority in fire, and of envelopment.

In the Regulations of 1888 the Task method takes in fact the place of a normal method, for the German Infantry now attacks only 'according to task.' The excessive latitude that has been granted to the subordinate leaders led of necessity to Tactical license. And at that point, then, we stand. It jeopardised of necessity coherence of action, but also the possibility of early deploying a strong firing-line. The law of seeking cover has sensibly impaired the needful keenness, and has done away with adherence to the normal areas. All this cannot remain so; and from year to year the need for a conversion has been more and more recognised. But this cannot consist in discarding the good that the Task way of fighting contains, nor in dragging forth a normal

scheme. The business is, rather, to supply again to the higher leaders the means and avenues to a coherent method. This is thoroughly compatible with that initiative which is necessary among subordinate leaders, which indeed they alone are able to evince. Thus, the Tactical tendencies are no longer in the same way opposed to each other, as they were: 'Task method or normal attack'; but by searching investigations they have been to this point cleared up: method of Unity, and in it, proceeding from limits that are certain but changeable, Task method or Horde method.

However, General v. Scherff, making a sagacious comparison,¹ has proved that in 1870 the Germans attained the superiority in fire in those cases only where the assailant advanced with a comparatively broad front of fire against the defender. Where this succeeded, the assailant, by means of the strong development of front, was spared the need of an assault. In support of his conclusion he cites the occurrences at St. Marie, Roncourt—St. Privat-Nord, and St. Hubert, from the battle of Gravelotte; and it would not be difficult to multiply examples. On the other hand, all measures in the centre and on the right wing at Gravelotte failed, because a comparatively broad fire front was not attained; the General should have said, no fire front at all of Infantry, and this notwithstanding the agglomeration of enormously superior numbers at the Mance Ravine. And here also the Task method was found utterly wanting, for it was unable to draw the smallest advantage from the great superiority that existed on the spot; the reason being that the deployment to the flank (theory of hollows), in a certain number of cases could not be made good afterwards, when it had not been attained beforehand, notwithstanding that every Task leader wished to force it on. If you desire a superiority of fire, you must in the first place have from an early moment deployment to the greatest possible breadth, but also come on in this formation to an effective range.

At the Mance Ravine neither was a deployment reached, nor a fire station as preparation for the assault, because of putting the hollows theory into practice! At St. Marie and St. Privat-Nord, on the other hand, success was attained

under the method of the time, truly not ideal, but still coherent. And again, the losses sustained in the system of hollows were quite considerably greater than in that of deploying early to a broad front. General v. Scherff proves, besides, that even in cases where the troops concerned were not strong enough of themselves to deliver the assault (Guards, St. Privat; 8th Jäger, 67th, St. Hubert), the forces led forward in coherence on a broad front were at least able to hold their own in the space they had attained, while troops that had not beforehand been deployed in breadth nowhere attained the power of resistance (Point du Jour). These inquiries are very essential to the decision of the question of what sort the mode of fighting of Infantry should be: it can but lie in coherent method; and this was always the case.

Now, if we take in hand the maps of the fields of action of the 28th Brigade at Probus, the 38th at Mars la Tour, and the 1st Brigade of the Guard at St. Privat, then perhaps everyone will concede that under present-day conditions, and with an intelligent and thorough use of ground, it would be practicable to lead on opened lines at one stretch up to a range of 600 metres. It is hardly possible that troops could come into worse predicaments than these. But at Probus, as well as at Mars la Tour and St. Privat, the execution of the combat in front would, according to modern view, devolve chiefly on the Artillery. And this arm would be quite in a position to solve its problem, while in all three cases there would be plenty of cover available for the Infantry to come on in various ways to close range (600 metres), and from there to gain still about 150 metres, advancing by rushes, if that promise an enhanced effect of fire. In such difficult cases of attack, in presence of modern weapons, it would on this wise be possible to bring whole brigades, under direction and leadership, to a range of 600 metres from the adversary. When they are, from that point, once launched into the devastating fire fight, there is an end of all superior guidance; the further execution of the combat rests then with the subordinate leaders, with the effectiveness of the individual man, and with the timely putting in of sufficiently strong

reserves by the higher leaders. I do not believe that there is much of force that can be brought forward to refute this contention.

At any rate we have to hold fast, with the greatest regardlessness, to the basis of the whole, namely to the consideration of frail human nature. And for this reason the great number of men must remain as long as possible under the eye and will of the leaders. Thus, the problem of bringing the greatest possible number of rifles to a range of 600 metres from the enemy does not rest with the Task method. But it is the affair of the brigade leaders; and is to be solved principally by adroit use of ground and dashing advance. This remains true notwithstanding all improvements of rifles. Certainly during its advance to the first fire station the Infantry must be strongly supported by the Artillery. The latter will be able to do this only if it have opened fire sooner than that of the enemy. If it have not succeeded in doing so, the advance of the Infantry might soon find a limit, and remain restricted to a stationary fire fight at distant range.

II. RESULTS OF EXPERIMENTS IN SURGERY AND BALLISTICS

ACCORDING to Dr. Paul Bruns, 'The Effect of the Projectile of the New Small-bore Rifles,' Tübingen, 1889, H. Laupp, page 50, one and the same projectile, at 100 metres range, penetrates 4-5 limbs,¹ even if in doing so it hit the strongest bones of the body; at 400 metres 3-4 limbs, at 800-1,200 metres still 2-3 limbs. About the same results have been furnished in France with the Lebel, and in Austria with the Mannlicher rifle, so that in this respect in future the shooting-performances of the rifles of both adversaries are pretty nearly on the same level.

Since the third edition of this book the above statements have in several respects been confirmed by further experiences, about which the Tactician must be in no uncertainty. So I will cite them quite shortly, following Dr. Johann Habart.²

Dr. Habart conducted, with support of the guiding authority of the Austrian army, a whole quantity of experiments on living animals, and control-experiments on human corpses. He carried his inquiries, besides, into the reports on suicides, among accidents on the shooting-ranges, and riots of workmen, and gave attention also to the phenomena that appeared on the different theatres of war, from 1870-71 to the Chilian war of 1891.

At Hermannstadt a Jäger was mortally wounded by a shot in the occipital bone at 2,700 paces (Mannlicher rifle).

¹ [The German word *Glied*, plural *Glieder*, used here, means primarily limbs, and also, in a military sense, ranks of men one behind another. The Tactical argument used hereafter, in Chapter IV., seems to justify the translation of the word here, and in that chapter also, in either of the two senses, the purport being practically the same.—TRANSLATOR.]

² *Ein Bruchstück einer grösseren Experimentalstudie, vorgetragen in der k. und k. Armeeschiessschule in Bruck a. L. am 1. Juli 1892.*

At Nürschan (on the 20th of May, 1890) a *Zug* of 16 rifles fired five volleys on a mob of workmen at 80–80 paces. It seems that in this case 10 projectiles made 32 hits ; so that 3–4, perhaps even 5, hits fall to the share of one projectile. There were 7 persons killed on the spot, 6 died within the next few days ; 19 of the wounded recovered. The proportion of killed to wounded proved to be 1 : 3·5 ; thus almost the same as at Biala, where among 18 wounded there were 4 killed. The malignity of shots at close range is hereby demonstrated without doubt.

At Concon the loss of the Balmacedists was almost equally divided between killed and wounded. At Placilla the proportion seems to have been 1 : 2·57.

In Chili an aimer was hit at 200 paces by an 8 mm. projectile (Mannlicher rifle) which had already penetrated an earthwork of 140 cm. that served as cover. The missile remained lodged in his body. The man died on the sixth day.

At 3,000 paces a projectile pierced to a woman's corset and remained there.

At Rosenkranz three *Witbois* men were killed by one projectile (German M. 88).

As to the phenomena at Concon and Placilla I have spoken already. The losses of the worse armed defender were twice as great as those of the assailant, of whom, however, but $\frac{1}{3}$ at most were armed with Mannlicher and Gras rifles. The moral impression of the superior armament upon the Balmacedists must have been staggering. Certainly the standard of good European troops ought not to be applied to these. Therefore only a qualified Tactical importance can be attributed to the various phenomena in Chili.

Among the experiments that here come into question, we must reckon also those of the shooting-schools of the different hosts. It is certainly in only restricted scope that the results of these experiments have come before the public. In Germany especially a deep silence is observed thereon. But one can, in the first place, from the German Service Instructions, draw really vast conclusions, arguing from effect to cause ; and in the second place, these are corroborated by experiments in Austria and France. Here come first of all upon

the tapis the valuable communications made by Lieutenant-Colonel Regenspursky.¹ There it is said :—

‘ Shooting experiments of most recent date have proved, you must know, that already at 1,600 paces distance a *Zug* in close order suffers considerable losses (15 per cent.) ; that already at 2,100 paces the small company column offers a pretty sure mark (from 215 shots it received 44 hits) ; and that a battalion just passing from column into the broader formation received, at 2,000 paces distance, 18 per cent. (from 400 shots, 56 hits).

‘ At the same time it was recorded that at the medium distances, detachments standing in two ranks in close order suffer four times, and detachments standing in single rank in close order suffer twice, the number of losses which a line meets with when standing at the same distance and extended to one pace. According to the result of these peace experiments it seems to be enjoined that the *Züge* be extended already at the great distances (1,500–1,600 paces), and the companies destined for the fire fight be caused to adopt the organisation in swarm line and company reserves already between 3,000 and 2,000 paces from the enemy, while battalions and larger bodies must already abandon the deeper column upon entering the sphere of rifle fire (about 3,000 paces).’

Then there were in Austria comparative experiments instituted according to the principles of the regulation frontal attack, and according to those of the battle attack by K. v. K.² ‘ The regulation attack,’ says Regenspursky, ‘ lasted 26 minutes 38 seconds, whereof 12 minutes 18 seconds fell to cessations of fire, 14 minutes and 20 seconds to delivery of fire. Total hits, 27·7 per cent. The so-called battle attack (two ranks continually overtaking each other at the double from the long distances, and firing rapidly, are intended to reach the enemy in the shortest time) lasted only 18 minutes and 40 seconds ; whereof 7 minutes and 40 seconds fell to cessations of fire, and 11 minutes to delivery of fire.

¹ *Studien über den taktischen Inhalt des Exersirreglements für die k. und k. Fusstruppen.* Vienna, L. W. Seidel and Son, 1892.

² *Wie sollen wir im nächsten Kriege angreifen ?* K. v. K., 1890. Militär-Verlag R. Felix, Berlin.

Total hits, 20 per cent. The regulation attack was carried forward to 200, the battle attack to 100 paces. The alternate doubling, breaking through the ranks in front, and firing, was conducted from 1,400–600 paces from the enemy. In this, the battle attack, with 700 shots got 49 hits, or 7 per cent.; the regulation advance from 1,400–600 paces, with 700 shots got 117 hits, or 16·7 per cent.'

So the battle attack proved itself considerably inferior in fire power; besides, the men were exhausted and, to begin with, no longer capable of employment.

From 600–100 paces from the enemy the battle attack, with 1,672 shots attained 498 hits, or 25·6 per cent.; the regulation attack from 600–100 paces, with 1,582 shots, 563 hits, or 35·6 per cent.

Attention was now turned to the converse case; for the battle attack with two ranks and the swarm line according to regulations were fired on by the defender from 1,300 paces, forward.

'From 1,300–700 paces, aiming at the marks of the battle attack, with 700 shots, 281, or 38 per cent., hits were attained; at the marks of the regulation attack, with 1,400 shots, only 128, that is, 9·2 per cent. hits. At the distances from 600–200 paces, the marks of the battle attack received 590 hits, or 61·5 per cent., from 958 shots; the marks of the regulation attack received 694 hits, or 45·8 per cent., from 1,514 shots. In the mean, the marks of the battle attack received 51·2 per cent., those of the regulation attack 32·2 per cent. hits.'¹

Firing while in movement occupies all armies; because, during the time occupied by the attack without fire, no effect is exercised on the defender, in which period the latter can make the greatest manifestation of fire. For subjecting fire in movement to regulation General Buisson had lit upon a technical arrangement on the rifle, into the particulars whereof I do not enter.² Thereupon experiments in shooting while in movement took place at the camp at Châlons s. M.,

¹ [I do not understand all the percentages.—TRANSLATOR.]

² *Formation und Taktik der französischen Armee*, Berlin, 1892, R. Eisen-schmidt.

with detachments each of 20 men moderately trained in shooting; and they lasted two weeks. The average results were:

1st. Fire uncontrolled, in the assault pace, 200–100 metres=18 per cent. hits.

2nd. Fire uncontrolled, in the assault pace, from 100–50 metres=39 per cent. hits.

3rd. Fire uncontrolled, at the double, from 200–100 metres=18 per cent. hits.

4th. Fire uncontrolled, at the double, from 100–50 metres=42 per cent. hits.

5th. Fire by word of command, first in the assault pace, then at the double,¹ from 300–50 metres=21 per cent. hits.

The rapidity of firing yielded 10 shots in the minute. The marks were supplied by targets of 2 metres high, divided at 20 metres, the breadth of the *Zug*.

The fear that the men would wound each other proved unfounded. According to Buisson, the attack with firing should begin at 400 metres in the assault pace, and the fire should be continued up to 100 metres from the enemy. In rear of the first line of skirmishers a second follows at 15 paces distance, destined to promptly make good the gaps in the first; behind the second there are to be detachments in close order, also at 15 paces distance, to lend weight and energy to the attack!²

The German rifle 88 has, according to the Musketry Instructions, a velocity of 600 metres at 25 metres from the muzzle; and, with an angle of elevation of 32°, has a range of 8,800 metres. Its projectile pierces, among other things, a piece of deal 45 cm. thick at 400 metres; one of 25 cm. at 800 metres; and penetrates 50 cm. of sand freshly thrown up at 400 metres; 35 cm., at 800 metres; thin brick walls are

¹ Double = 180 in the minute; assault pace = 140 in the minute.

² To obtain security against modern fire, so called bullet-proof uniforms have been proposed, as is known. I think nothing of them. But the Danish 'Holstein Shield' merits consideration, under some circumstances, for the defence; and it has indeed been introduced into the Danish equipment. The idea may still be capable of being perfected; yet it has also in France important adherents, as regards the defence, for example.

only an imperfect protection : if several shots hit the same place they go through.

The mean heights of the projectiles in their flight, given in metres, above and below the horizontal line of sight respectively, are, at 200 metres, 0·2 ; at 400 metres, —0·5 ; at 600 metres, —1·0 ; at 800, 1,000, 1,200, 1,400 metres, 0, and so on.

At 200 metres the dispersion in height of the projectiles amounts to 25 cm., the dispersion in breadth to 20 cm. ; at 400, 600, 800, 1,000 metres respectively, 70, 42, 140,¹ 64, 206, 112, 298, 160.

When the fixed sight is used all objects from 0·35 to 2·0 metres high are within the dangerous space ; when the small leaf is used all objects from 0·85 to 2·0 metres ; when the 500-metre sight, all from 1·70–2·0 metres ; when the 600-metre sight is used, and the objects are 0·85, 1·20 and 1·70 metres high, the dangerous spaces amount to 48, 72, and 111 metres ; when the 800-metre sight is used, and the objects as before, the dangerous spaces are 25, 38, and 54 metres.

When the weapon is correctly used a hit may be expected from every shot : within 250 metres, against all objects ; up to 350 metres, against a single adversary kneeling ; up to 500 metres, against a file kneeling (the men close beside one another) ; up to 600 metres, against a file standing (the men close beside one another), and a single mounted man.

As regards distances, it is there said that those up to 600 metres are short ; from there to 1,000, medium ; and over 1,000, long.

The fixed sight is sighted for shooting at 250 metres ; the small leaf at 350 metres.

To this it is to be added that rank and file ought to be proficient in judging distances up to 600 metres ; officers, non-commissioned officers, and rank and file with good capacity should be able to judge them up to 1,000 metres.

‘Regarded purely from the point of view of musketry

¹ [180, according to *Schiessvorschrift für die Infanterie*, Berlin, 1898, Mittler & Son. Hoenig's text is of course followed in translation. It tallies, in almost every particular of these concise statements, with that edition, whereof compare pp. 17–22, 47, 65, 76–77, 81.—TRANSLATOR.]

doctrine,' say the Musketry Instructions, 'columns at distances beyond 1,000 metres are (therefore) in considerably greater degree endangered than detachments of equal strength formed in line.'

It would be insufficient if we confined our attention to the results of the rifles ; for the effect of the Artillery projectile has, under some circumstances, been enhanced in equally important degree. The particulars thereof are here passed over. Yet general references might themselves suffice to prevent any doubt of this proposition, if we take into consideration the great improvement in the effect of shrapnel. Shrapnel has indeed only a missile sheaf of dispersion forward and sideways. But this, nevertheless, is so great at the present day that, if distances be judged with some degree of correctness, the shrapnel unites in itself the properties of the grape-shot of former times, and this up to the longest ranges. Therefore, it is now the chief projectile of the German Field-Artillery, which fought really all through the war of 1870-71 using only shell. Further there comes in, for all ranges, the considerably enhanced effect of shell also, and the effect of projectiles of explosive power ;¹ however, these demand special accuracy in finding the instant and height of burst. Now the operation of bursting projectiles¹ is not simply one of dispersion forward, but in all directions, that is, forward, sideways, backward, and downward. This remains a matter to take to mind specially for positions behind walls and similar protections. Consequently the projectile of explosive power¹ has, up to a certain point, brought the solution of the question that was hitherto a difficulty in campaign, and could only be successfully arrived at by indirect fire. But since the exact judging of distances is very difficult, and up to the present time the fragments of the *Sprenggranate* consist of too many small particles that have too little effect, the hopes that were at first cherished in regard to the *Sprenggranate* have reached no complete fulfilment. But this projectile question cannot yet

¹ [*Brisanzgeschosse*, *Sprenggeschosse*, *Brisanzgeschoss*; apparently with special reference to high-explosive or detonating projectiles. The root *Spreng* appears later, in the rather different *Sprengwirkung*, or breaking-up effect of rifle-bullets since the Chassepot; cf. pp. 250, &c. hereafter.—TRANSLATOR.]

be considered settled. The defender, then, must seek first of all to subdue the hostile Artillery; and the assailant that of the defender. Perhaps the Artillery will not always succeed in doing this by itself, but Infantry will have to co-operate. It is, however, evident also that to-day the Field-Artillery must come up to specially high requirements of mobility. The Field-Artillery has not to lay any fortifications in ruins, but operate by the mass of shot fragments. So it may be light and mobile. It must be able in mass to move at the trot over great distances, pass the marching columns, and in mass deploy. Let the question be waived whether the German gun answers these demands. What has been said here about the Artillery holds good not only of the German, but just in the same degree of the French, for example. As regards Russia the state of affairs cannot be apprehended with certainty. On the other hand, Austria and Italy may be found to be in about the German position.

The result of this exposition is that the armament of Infantry and Artillery is moving everywhere pretty well on the same alignment. Thus a superiority of armament that is worth mention will nowhere exist. Superiority of force will therefore only be of possible attainment by way of training and leading.

III. SMOKELESS POWDER¹

Of all inventions since that of gunpowder, there may have been none that exercised so great an influence on Tactics as that of smokeless powder. The new powder gives the projectiles, besides other ballistic properties, a far greater velocity, with which Tactics must indeed be acquainted. Nevertheless, it is superfluous to go particularly into this, because the practical results have already been laid down in the shooting instructions for the Infantry and Artillery. On the other hand, it is necessary to emphasise shortly the optical and Tactical side of the matter for all arms.

It is true that by use of the smokeless powder the appearance of smoke has not entirely vanished in the case of either gun or rifle. But it has, indeed, been so considerably diminished that the smoke remains always transparent. Also the adversary can perceive it by exact observation; and when the air is clear, moist, and still, the smoke appears stronger than when it is warm, dry, and moving. Notwithstanding, the individual skirmisher and the gun-layer are able now, however vigorous the fire, to see through the smoke, and in certain degree to follow the path of the projectile; and, just so, skirmishers and guns can be seen, if this be possible at all. But the being seen is in most cases preceded by protracted undertakings for making out the first outlines of the hostile position. Accordingly, reconnaissance would needs be made considerably more difficult, the execution of the combat more easy. The former will no longer be doubted in any quarter; as to the latter, peace cannot furnish any adequate elucidation.

The continually open view, and the great range of the

¹ [The German phrases used are '*Schwachrauchend*' and '*Rauchschwach*,' meaning 'weak-smoking' or 'weak in smoke.' - TRANSLATOR.]

small-bore rifle, combine to give a greater importance to Infantry fire. The Infantry now can always see, under some circumstances can see far ; and can turn both these facts to the best advantage by use of a long-range rifle with flat trajectory and great penetrating power. It will thus be in a position to observe from the first every movement of comparatively large bodies of Cavalry, and to fire on them from such long ranges that that arm must lose value as against the Infantry ; because, according to human judgment, surprises can now be only of rare occurrence. Individual skirmishers can only in exceptional cases be timely discovered by Cavalry patrols. Thus, the reconnoitring activity of Cavalry is also considerably diminished.

By means of the new powder and the new rifle the Infantry comes into a more advantageous position also as against the Artillery, unless the latter, after previous reconnaissances, have been secured by advanced skirmishers against an effective Infantry fire. Then the Artillery might suddenly suffer loss in horses and men so great that it should fail in some part to drive up, in some part to open fire with the speed that is specially necessary against the hostile Artillery. Already in 1870-71 our gunners dreaded more the enemy's Chassepot fire (distant fire) than his Artillery fire ; and the German Artillery had actually much more to suffer from the former than from the latter ; in connection with which, indeed, the great inferiority of the enemy's gun was made a special subject of conversation. But, since now the guns and the effect of the projectiles are of about the same grade, while the adversary has also a rifle still more perfect than in 1870, it might follow from this that our Artillery will in future meet with much more difficult circumstances than in 1870-71 ; while our Infantry opposes that of the enemy with a weapon at least as good as his, and is therefore in a better position. In my opinion this one point of view imposes on the Artillery : 1st, the obligation of much more thorough reconnaissances before entry into the fight than before ; and 2nd, it should take to itself on principle the recommendation of covering its front and flanks with considerable advanced swarms of skirmishers. If both or only one of these things fail to be done

there might result for the Artillery at the beginning still much worse situations of the fight than, for example, with the Artillery of the IXth and VIIth Army Corps at Gravelotte. These two examples are downright warnings !

If, on the other hand, the Artillery have reconnoitred well, and keep off the vexation of hostile Infantry fire by means of Infantry swarms advanced 500 metres at least to the front, principles which were always laws of Tactics, then the Artillery may draw extraordinary advantages from the smoke disappearing. It may then, if dexterously handled, operate quite decisively, if it have learnt to shoot, come into position using the best cover and having sustained the least fire possible, and if, in compliance with correct observation and guidance, its ranging be quicker than the adversary's. Learning to shoot, however, is but an affair of peace, and it may be expected that our Artillery in future will be able to do it. If against this it be alleged that one does not shoot in the fight as one does upon the practice-ground, and that it is difficult or impossible to replace gun-layers who are shot away, this is true ; but one must nevertheless desire what is rational, and that is to quickly open fire. If this be attained, the Artillery wins at one stroke ; for the vanishing of smoke makes it always possible to aim and to observe, while, again, the diminished recoil permits quicker firing, and the better projectiles must, on all these grounds, produce an incomparably greater effect. This is not all. Hitherto the so-called concentration of fire against the decisive points was properly more a theoretical idea than a Tactical possibility. The great development of smoke cloaked great lines of Artillery in a short time, so much that you could neither talk of aiming, nor of observing, nor of any control of greater masses of Artillery ; in consequence of which the effect was also of necessity correspondingly less. This is now changed. Still further there is the fact that now the masses, moved nearer to one another, or in positions one behind another, can continually put in their full fire power. This, in the long run, might not always be a thing to recommend, but still under special circumstances, thus, for instance, when superiority of fire has been reached, it may be advantageous. If the Artillery be Tactically well schooled in

peace, if it have learnt to shoot and to observe, then it cannot be denied that the effect of Artillery must increase extraordinarily. Let us clearly comprehend what is meant by the fact that now 36 guns in a minute deal out 3,000 splinters! If an Artillery capable of such performance have opened fire earlier than that of the adversary, then the existence of the latter can be possible for the shortest time only, but then indeed a chief work has been done for the assailant! The Artillery certainly will not shoot away good Infantry that lies as skirmishers in the folds of the ground; to drive it away is and remains the affair of Infantry. Also protections, under certain circumstances, assist neither the hostile Infantry and Artillery, nor the Cavalry; for the Field-Artillery can now catch every arm behind the protection; however, this question is not yet practically closed. Further, the Artillery has the great advantage that it has means of ascertaining ranges, though this is hitherto denied to the Infantry where the ranges are long; the latter, herein, still remains dependent on the ranges found by the Artillery.

It might follow from this that well-trained and well-directed Artillery has now become, *par excellence* and under all circumstances, the arm for action at a distance; and that, if Infantry and Artillery make common cause in one objective which also is now for the first time become possible by the vanishing of smoke, the decision may, according to theoretical estimation, come quicker than it used to.

Smokeless powder has, to be sure, so far disadvantages that now it is made more difficult to perceive the position of the hostile Infantry. But these disadvantages, which apply to both sides, are to be substantially diminished by observation with good glasses. Again, there is the advantage on the other hand, that the co-operation of Infantry and Artillery, and therefore their guidance, is absolutely facilitated; the more so as the report has become not fainter, but shorter. But if seeing and perceiving constitute for all human activities the condition precedent to every transaction directed to a known end, then it must on the whole be conceded that the advantages of the smokeless powder far

outweigh the disadvantages; and that the presuppositions in the case of the two chief arms are now first realised, to make ready beforehand an attack in short time in full weight. The Tactical principles hitherto recognised are thus not done away with by the invention; but they find for the first time their complete sphere of employment.

Now if we figure to ourselves an enveloping attack, even against a prepared position, the defender will—1st, suffer far more than he formerly did from the conjoined fire of the Artillery and Infantry; 2nd, breastworks and entrenchments no longer render by any means the required protection; therefore the inventions point, 3rd, all the more to envelopment; this must, 4th, become more effective; and consequently the attack would gain in prospect of success, instead of losing. This is the way the matter presents itself in theory!

If I may now recall the example of Probus, where on the one flank masses could be led on through the Popowitz Wood up to 600 metres, while on the other (Nieder-Prim) an approach under cover up to 200 and 300 metres was practicable, and if one imagine this position occupied by troops with weapons of the present day, it might then follow that the assailant's rôle has not been made so very much worse. For battlefields of this sort will form rather the rule than the exception. In future one would certainly lay still more stress on the envelopment, and this through bringing a more sweeping blow to bear by way of Nieder-Prim. But even in front, against the space Probus—Nieder-Prim, an almost unobserved advance could be executed by strong swarms of skirmishers in the fields of rye that grew to a man's height. This advance could be made up to such a range that the hostile Artillery could not see these skirmishers, and would be prevented by the vanishing of smoke from noticing their progress, and consequently the assailant's skirmishers thus approaching under cover would, by fire at 1,000 metres and less, make untenable the enemy's Artillery position. Such conditions we shall not always have. But the instance shows indeed that they existed. Why should they not recur? For the defender the deduction is, that in similar situations he

must burn down-rye fields of that kind to 2,000 metres distance; also simple hedges and slight folds in the ground may become very inconvenient to the Artillery.

But, at any rate, the Tactical employment of the Artillery necessarily underwent alterations for two reasons. The first consists in the better rifle; the second in the considerably enhanced effect of the Artillery projectile. Both circumstances become perceptible in Tactics, first of all by reason of the greater range of the projectiles. The German Infantry Regulations say, correctly, 'In the fight against Artillery it is to be observed that this arm has the superiority of fire beyond 1,000 metres, and it is only below 1,000 metres that the relation balances itself. There are cases conceivable, however, in which Infantry may operate against Artillery at longer ranges with advantage, but then the expenditure of a considerable quantity of ammunition must be risked.'

I should think, then, that in many cases it will be possible for the Infantry, when once the range is found and the fire under direction, to fire at more than 1,000 metres at Artillery that can be seen, and to succeed in making impossible the continuance of the fight by the latter. This advantage will chiefly fall to the share of the defender's Infantry, because one may assume that in most cases it can hold itself prepared to receive Artillery. Besides, the defender's Artillery will be careful to cannonade that of the assailant with a mass fire at known ranges. From the two assumptions I infer that the Artillery of assailant and defender will seek to fight each other at comparatively long ranges; yet this finds its natural limit in the optical phenomena of the battlefield. At all events, the Artillery must in peace learn to shoot well at long ranges, and must be trained in a mass fire which is manageable. In subduing the defender, then, the assailant's Artillery must be mindful from the first to deploy in the greatest mass he can, to choose a favourable position, to get possession of it under cover; and it ought, during the execution of the combat, to effect only few changes of position. I hold that to accompany the Infantry attack is, in most cases, neither useful nor advisable. The positions of the Artillery will vary between 3,500 and 1,200 metres; the principal range will be 2,500;

and shrapnel especially makes always feasible at these ranges an effective, even an annihilating, fire, if the Artillery get to opening it in due time. We may assume, then, that the Artillery combat will, under certain circumstances, be of only short duration, but of much intensity, and that in the course of it considerable pauses will occur in the Artillery fire. At any rate, this seems to me to result in theory from the effort to open fire in proper time, to deploy in mass, taken together with the great effect of the projectiles.

But Artillery is ever the complicated arm ; and, therefore, an equal proximity of the enemy must put it in much greater peril than the Infantry. To keep the adverse Infantry as far as possible from the Artillery is here, again, a thing to be effected by the Infantry.

The Artillery is therefore dependent upon advanced Infantry, and, besides, upon as much cover as possible. Smokeless powder makes, at any rate, higher demands upon skill in shooting than black powder does ; and higher demands upon the leaders' circumspection and power of judgment, to choose early a position so close and effective that change of position may be avoided as far as possible.

Now the uncertainty which is propagated by smokeless powder has doubtless introduced into Tactics the greatest change. It gives to Infantry the power of hiding its own weakness, and may entice the adversary to enterprises that require very much time. Especially will the defender be at pains to keep long hidden his actual position and to employ his Artillery in accordance with that idea. For as soon as he has unmasked his strength in Artillery he has revealed also his real position, and this would much facilitate the work of the assailant. All experiences acquired in peace lead me to think it very unlikely that the hostile position can ever be exactly ascertained in due time only by Cavalry patrols, and officers in observation. The most that will be possible by these means is to make out the wings ; and I do not place any special hopes in the captive balloon for employment in the war of movement. All further information can only be acquired by fighting, and here lies what is new, especially for the Artillery.

In my opinion this arm must thus become a 'reconnoitring arm' in high degree. But for this reason it must also, instead of being removed from the advanced guard, be present there as strong as possible, and, as has been emphasised already, it must be specially mobile. The Cavalryman can no longer come on so close as he would have to use his eyesight correctly and adequately. If he will do this, you may bet a hundred to one that he never returns; and no further insight would have been gained by what he has done. Deployment of Infantry in strength for the fight, in order by fighting to make out anything, requires too much time; the only thing that remains for reconnaissance is an adroit and powerful employment of Artillery. If this take place the defender must deploy, or be promptly subdued, in case the main position be in question. If, on the other hand, we have to do with an advanced position only, he will not be able to hold it, and will therefore, by retiring, divulge the main position. The insertion of the Artillery into the marching column must therefore answer two requirements: 1st, Reconnaissance in force (for fighting); 2nd, To move forward out of the provisional forming up at once into the main forming up, for the purpose of subduing the main position with the greatest possible superiority in number of guns. That this must bring on important difficulties need not now be said.

It will, indeed, be as little possible for the Artillery by itself to see to reconnaissance, as it would be advisable for it without advanced Infantry to move forward into the main fire position. Neither of the two problems can it solve by itself; the Infantry is in both cases its protection against the hostile Infantry.

So smokeless powder has, in the first place, the general consequence that Infantry and Artillery are made Tactically still more dependent on one another, and that Tactical reconnaissance has fallen chiefly to their lot. But it does not make easier all these operations; rather, several are made greatly more difficult by the force of uncertainty.

Every cannon-shot does, indeed, exhibit a very distinct light. If the gun stand on loose ground the flash is accompanied by a quite visible cloud of dust. When it stands on

turf, on grass, &c., or at the edge of a wood, in place of the dust there appears a vapour of smoke, which is set off very distinctly against the green ground. Thus the Artillery will announce its position in a very clear way; its firing will not merely disclose the general position of the battery, but will also allow the possibility of the number of guns being approximately counted, which was formerly never the case. It must, therefore, take more care than ever to hide its position from the enemy's forces of both arms. Thus indirect firing should not offhand be proscribed as an artificiality.

By the vanishing of smoke the Artillery has become an arm in whose case complete victory and unknown defeat are next-door neighbours. It may depend on one moment, on one mode of action, what form its fortune takes. The basis of that fortune lies principally in the suppression of the hostile Artillery. Accordingly, a fresh Tactical spirit had to establish itself in the Artillery, which, as stated, has also taken place. But it was only by means of the smokeless powder that the Artillery was able to become a weapon of even annihilating effect at a distance. Much must yet take place, indeed, in order to reach the last Tactical consequences from that, after attaining an appropriate technique. To go into detail on this point would not be opportune.

Mass operation through individual operation is to-day a Tactical law with the Artillery, as with the Infantry. The Infantry knows no longer any other than the combat by masses of skirmishers, but it had only to modify its principles. The Cavalry has not become less valuable through the smokeless powder; rather, the manifestation of its value has been shifted to other times, and also to other forms. Should it understand how to make full use of these times it may prodigiously enhance the magnitude of victory, but no longer can it decide battles!

The moments of Tactical 'perplexity' will in general be multiplied and protracted. This is attributable to the uncertainty which smokeless powder has introduced into Tactics.

IV. TACTICAL INFERENCES FROM THE EXPERIMENTS OF BRUNS, FROM THE BALLISTIC PERFORMANCES OF SMALL-BORE RIFLES, AND FROM THE PROPERTIES OF SMOKELESS POWDER FOR THE ATTACK

THE cited experiments of Professor Bruns, Dr. J. Habart, Professors Busch, Kocher, Reger, v. Billroth, and v. Bardeleben, and of the French Déhorme, Chauvel, Nimier, Breton, and Pesme,¹ and the statements of the shooting instructions for the Infantry and Artillery, are of high Tactical importance in various directions besides those of surgery and ballistics. If one and the same projectile at 400 metres pierce 3-4 limbs,² at 800-1,200 metres still 2-3, this translated into Tactics means that at 400 metres, if 4 ranks stood one behind another, and at 1,200 metres if still 3 did so, the mass of men hit would be 4 or 3 times as great as if only one rank were present. (I do not pay any attention to the 100 metres range, at which 4-5 limbs are pierced, because I believe that the assailant would only in exceptional cases be able to get as far forward as that without the position being already abandoned.) Now it is true these results were obtained on smooth surfaces, but they still have value nevertheless; and it would be foolish to seek any reason for contesting their importance in the assertion that such smooth surfaces did not occur in actual experience, and that shooting on the battlefield is a different thing from the results of the practice-ground.

As regards smooth surfaces, we learn from Probus, Mars la Tour, St. Privat, and especially Loigny (one should be so good as to collate the maps), that in battlefields where there

¹ *Recherches expérimentales sur les effets des armes nouvelles et des balles de petit calibre à enveloppe résistante. Archive générale de méd.*, October, 1888.

² [*Glieder.* See note 1, page 230, above.—TRANSLATOR.]

is a front of 15 kilometres and more, spacious plains exist ; and it would be easy to multiply the instances, if it lay within the design of this work. As regards country, then, military history itself being borne in mind, we are not concerned with rare exceptions. And it is quite natural that he, who on account of numerical inferiority resolves to adopt the Tactical defence, or who on other grounds—even purely Tactical ones—wishes, perhaps, to take it up at first, or from other causes that arise from the general military situation, will select positions that offer wide, open surfaces to shoot over, so as to make hard the assailant's work, and to draw from the firearms all the advantages suggested by them. It is also to be expected that, at the places where a close approach (600 metres and less) is rendered feasible, the defender will place such artificial strengthenings that, by concentrating the operation of his fire, he is able to considerably increase his fire at short ranges against those points. But he will also not disdain artificial strengthenings upon the flanks, and upon fronts that have a large surface to shoot over—1st, to break as far as possible the effect of the cross-fire directed against him by an enveloping adversary ; and 2nd, as a protection against Artillery, the real representative of distant fire. The defender, by the way, is forced to this by modern shrapnel fire also. I would, in anticipation, remark that the breadth of front hit by the missiles of one shrapnel amounts to about 60 metres. The distribution of the hits is almost a consequence of the law of dispersion ; that is, reckoned from the centre of this front, it comes to 25, 16, 7, and 2 per cent. But the proportion is the same in the case of every range. A battery that has regulated its fire will have 78 hits with every discharge of shrapnel ; thus the same number of hits against an Infantry detachment of 60 metres breadth of front. Hence it results that from 2,500–1,200 metres the subordinate leaders of Infantry must be allowed, in crossing this area, to diminish the front by all possible means. I here follow an exposition of the 'Journal des Sciences Militaires,' but I forbear from other statements for obvious reasons. The advance from 2,500–1,200 metres must, at any rate, be performed on principles different from those that govern it from that point forward.

In the cases where Tactical reasons demand that Foot-soldiery be thrust forward on a wide surface one will have to take 800–600 metres as the closest range to the adversary ; but in no case may one advance nearer than 400 metres. For the rest, the 38th Brigade at Mars la Tour proved that it is possible, however, with good troops and bad formations to advance to the assault, even over open country, till mixing up with the adversary, while opposed to a fire that will never be much exceeded by the small-bore rifle ; though I will, in truth, not recommend this performance of bravery as a pattern of Tactics. At St. Privat, the 1st and 3rd Infantry Brigades of the Guard showed that on open ground, when the assailant is in sufficient strength, it is possible to hold out for hours while suffering extraordinary losses, and this, too, in formations that ought to have been long before laid in the grave. Though close reflection does not let us perceive, in this holding out, as brave a performance, yet each of these examples of attack, while Tactically to be condemned, still contains something worth taking to heart. The 3rd Infantry Brigade of the Guard had certainly the fighting power to repel about 6 counter-attacks energetically led ; and both Brigades, after proceedings, it must be admitted, out of the common, whereby their fighting-power was pretty well consumed, took their part also in the last act of victory. That was something extraordinary ! Where the broad plain must needs be taken into the bargain, there is in the sphere of Infantry fire but one formation for movement and for fighting. It is the swarm of skirmishers in single rank. Herein it must be a law of leadership to keep in forward movement as long as possible, for every halt diminishes the energy of the movement. He that denies it does not know man. With the shooting-performances cited from the Musketry Instructions Foot-soldiery can, indeed, in such cases, at the ranges from 1,000–600 metres, perform what in reason may be demanded of it, to keep the adversary under a continuous skirmishers' fire. If, between 2,500 and 1,200 metres, one would employ broad columns, or line in close order, the losses would even here lead to annihilation, according to the testimonies we have around us. Thus, the regulations must present data for

the best form of advance under Artillery and Infantry fire ; because the zones of fire are very different. It is only in the rarest cases, moreover, that any anxiety need be felt about shrapnel fire still at 1,200 metres. This formation for movement, different on principle, demanded, again, a coherent method.

On the 16th of August, 1870, in the 38th Brigade, the proportion of killed to wounded amounted to 3 : 4. This remarkable phenomenon, hitherto subjected to no detailed inquiry, has its explanation in the fact that the Brigade moved forward till it mixed with the adversary, while within the sphere of the breaking-up effect of the Chassepot, and back again, a distance of $400 + 400 = 800$ metres.¹

It is here appropriate, however, to emphasise yet another thing. The experiments of Beck,² Bruns (pp. 49-52), have proved that at all ranges, till that of 800 metres is reached, the wounds inflicted by the small-bore rifle will be relatively less dangerous, because the great penetrating power and hardness of the missiles produce at those distances mere channels through which the bullets pass, answering to them in form, accompanied by splinterings of bone that are not dangerous. So in most cases a cure may be expected when the man is not hit in the head, the heart, the windpipe, the bladder, and so on. He is merely put out of action ; while crippling and maiming are no longer to be apprehended in the same degree as they were with the former Infantry projectiles. It must be added supplementarily, that a similar state of things obtains in respect to the small, though indeed numerous, splinters of the Artillery missiles, and bullets used for filling them. From 800 metres to the muzzle of the rifle, on the other hand,

¹ According to the views of Billroth and Bardeleben, the probability cannot be denied that in future we may expect rather an enhancement than a diminution in the proportion of killed to wounded on the battlefield. On the other hand, the mortality among the wounded might substantially decline. In 1877-78 it amounted with the Russians to nearly 26 per cent. ; in 1870-71, with the Germans, to 12 per cent. ; in 1878, with the Austrians, to 6.6 per cent. ; in 1882 it rose to 9.5 per cent. ; in 1885-86, on the other hand, it fell to 2 per cent. The experiences in Chili approached this last point.

² B. v. Beck, *Ueber die Wirkung moderner Gewehrprojekteile*, Leipzig, 1885.

the wounds produced by modern missiles are extraordinarily severe, owing to their breaking-up effect ; and from this point the condition is reversed. These facts must be assimilated by the host, and become part of the flesh and blood of all ranks. The leaders especially must be thoroughly familiar with them, for welfare or destruction may depend on whether they are attended to or not. Our prime necessity, in presence of the modern way of fighting in swarms of skirmishers, is, under all circumstances, the strengthening of the powers scientific and moral, the latter especially in the common man. Nowadays the officer must really be, among other things, master in the physical and psychological spheres ; if not, he is only a corporal, a mechanic in his profession. No one, indeed, will wish to be that ; his pride would needs rise up against it. But in the ordinary man, according, say, to the disposition of the majority, strength of *morale* is increased in the same degree as his knowledge that wounds from Infantry projectiles become less dangerous. He who believes he is encountering only a transitory hurt will come on the scene with more decision than the same man will if he sees before his eyes more or less certain death from every shot that hits. That is the state of affairs in reality ; and what the above-named learned men have established must therefore be generally disseminated. It is not merely a surgical point of view, but a Tactical also ; for a simple reason indeed, that resides in the shooting-performances of small-bore rifles from 600 to 400 metres. For these are of such nature that, unless an approach under cover be practicable, no cause is patent why troops should advance nearer, or indeed enter the zone where the dark side of the small-bore rifles, in regard to severity of wounds, makes itself terrifically felt ; that is, from 300 metres down.

But if anything of this kind can be avoided, without sensible prejudice to shooting-performances, then that is a Tactical law that must govern all, apart from the point of view of simple human nature. For merely our own advantage and the impulse to avoid senselessly destroying by our own ignorance and unwisdom our material forces, a measure that would incapacitate us for the leading of any combat at all, demand that this point of view be known, thought out,

and regarded. War can have attractive power only as art; by art transport us beyond its adversities, and lead to victory. If it degenerate into senseless butcheries, its effect is repulsive; it loses all nobility, which science and art alone can convey to it. It degrades itself to a rude trade; and brutality smothers all beauty, which dwells in every art. Now, unfortunately, it happens quite too often that artist natures are absent where they should be present; and this is consequent on that disparagement of sciences, to which the officers are regularly accustomed. If, then, upon peace spent in loitering, with so many hours that would have afforded time for study, there follow a war, in that case many a 'leader' is in his own profession as if in a strange world! Some of them do not know how to conduct themselves; some of them lose their heads. They have not learnt to judge what the powers of mind are capable of, and their ignorance and want of Tactical skill are the grave for thousands, of whom they rob the Fatherland.

Now the Musketry Instructions call ranges up to 600 metres close. Hence it follows, that in the results of fire there is from that point a palpable limitation; thus, that the effect up to that point is about uniform (from 300 metres down it is, indeed, one that increases to annihilation). In that fact, consequently, is contained justification for the demand that the zone of fire from 300 metres down, where the breaking-up effect comes in, should only be trodden, as a rule, if approach under cover be practicable, the adversary shaken, his force broken, and he in the act of 'removing.' In conducting the fire fight itself, a good field of fire obviously presupposed, it remains hardly of importance to the result whether fire be delivered at 400, 500, or 600 metres. On the other hand, the breaking-up effect, penetrating power, and flat trajectory, require that one well consider whether an advance to and past 300 metres be not as a rule forbidden by the numerical losses which these things so greatly increase, and by the severity of the wounds produced. I consider on purely Tactical grounds that it is in many cases impracticable in the *bataille rangée*.

Doubtless, when one cautions others against orthodoxy, one ought first of all to guard against it oneself. In the case

of the old Chassepot the breaking-up effect extended, with its devastating power, 25 per cent. farther than does that of the modern Lebel and Mannlicher rifles; that is, to 400 as against 300 metres;¹ and yet it has come within my own experience that, where the adversary had a field of fire he could see over (Mars la Tour), we pressed forward till part of our troops and his were confused together, at a range fluctuating on the whole about 100 metres. I came across other instances also in the January fights about Château Renault. In one of these, that took place in the morning (6th of January), on an apparent plain, I was yet successful in conducting a half-battalion, divided into two company columns, under cover, up to about 250 metres from the adverse line of skirmishers; and I had earlier managed to indicate the same route to a mounted battery and one squadron of the 3rd Cuirassiers. All these troops made use of that route in advancing and retiring, and at any rate suffered therein no losses worth mentioning, notwithstanding the enemy's missiles rattled like peas against the tiled roofs of the village of Vilthiou, which was about one kilometre long, and ran parallel with this route for some distance. Besides myself, Lieutenant de Rège remained on horseback all the time at this range, exposed to a very lively small-arms fire; and neither of us was hurt. Then, after the retreat, I sought out a company 12th/57th (Lieutenant v. Kehler), which had been at the south-westerly exit of this uncanny village defile, and forgotten. I again galloped through the village, the south side of which was meanwhile, almost its whole length, in the enemy's possession, and drew this company's attention to a way north about the village. Using it, the company made good its retreat also without suffering any loss worth remark. Later, when I met Herr v. Kehler² again in Berlin in the year 1889, he thanked me heartily for this. Also on the 7th of January, in the morning, I was witness of an assault by F. and IInd/57th on the village La Garionnière. Here, despite a good field of fire and a tenacious adversary, the attack, at least by two companies of the IInd Battalion, was carried out in close formation in an absolutely elegant manner, while the Fusiliers fought for the most part in the

¹ Bruns, p. 51.² Now commander of the 71st Regiment.

form of skirmishers, but still did not gain ground so quickly as did those companies. It is true the Fusiliers had been the real bearers of the fire fight in the front, while the IInd Battalion was able to approach, tolerably under cover, from the flank. The adversary defended himself also from house to house. I have intentionally instanced these successful and unsuccessful attack-fights from the *bataille rangée* and simple fights about localities. They teach that an advance was well to be made against Chassepot fire, if one knew how to make use of country. I will mention no more. Now the Chassepot had the properties of the modern small-bore rifle, even if not in the degree now attained. In regard to range it approached it; it was considerably behind in relation to penetrating power and flat trajectory. To judge from the present state of investigations, the Chassepot had the damaging properties of the small calibre, as regards the wounds inflicted by it from the muzzle up to 400 metres; but lacked its advantages from that distance to 2,000 metres. That is, it inflicted severe wounds at long and close ranges because it carried a leaden bullet which, upon impact on bones, changed shape greatly; and the consequences were very bad splintering of bones, tearing and crushing of soft parts. That this has been so substantially improved in the case of modern small-bore rifles is the result of the hard steel and nickel-coated missiles now employed, which change shape in small degree only.¹ So the Germans came in for the hard fortune of having to fight against what was, from the point of view of humanity, the most detestable rifle that had found employment in war, a real horror of a firearm, especially at the ranges between 100 and 400 metres. Besides that, they have had a thorough taste of all gradations of fire. And in case the Germans had to face the Lebel rifle in earnest, they, in whom the consciousness of their experiences has been established and handed down, would not feel nearly the surprises from it that would be discovered among the French, acquainted only with the fire of our needle-gun, if they should have to oppose a rifle equivalent to their own, or even superior; for example, then, our rifle 88. This

¹ Also the newest projectile, the so-called 'hollow missile,' exhibits the same phenomena, with other advantages.

is, again, a point of view of *morale* that must be made widely known by instruction among officers and men.

According to all this, it will be still often possible, even in future, especially where independent fights are concerned, to come on with detachments in close order to short ranges (600 metres); and by making use of country, fog, and twilight, to come still nearer, so as to give the decision. On this ground the troops must for such cases be proficient in the necessary formations, whose breadth and depth are always dependent on country. At any rate, the difference between Chassepot and Lebel is not for us so great as is for the French the difference between needle-gun and M. 88. What the Germans performed against Chassepots is known. What the French will perform against M. 88 they have yet to show.

The penetrating power of small-bore rifles is so great that trees are no longer really a protection. To be so they must be very stout ones; but these are rare. The case with masonry is often no better. So there remains very little that is any real cover for the assailant. All this must be known, too, by every man, to say nothing of every officer. The fire fight will often be carried out between 1,000 and 500 metres; and then, indeed, on a basis of the statements contained in the Musketry Instructions, it seems to be a precept for the whole of the Foot-soldiery to attain the greatest dexterity in use of the spade. Work will in many cases be prohibited by the enemy's fire; but it may prosper, too, especially in the frontal combat. Throwing up earth to a height of 35 and 50 centimetres does not in truth mean any great performance, where it is possible at all. The Americans with the greatest speed 'grubbed up' cross-sections of this sort for many kilometres distance. I say 'grub,' for they were not supplied with our spades; but they provided for the business with their hands, making use of their sidearms, their cooking-vessels, and so forth: they knew how to help themselves as practical soldiers. But awkward Michael is never seen so characteristically as when he has to do this 'grubbing.' To observe how awkward, slow, indifferent and lazy individual races especially show themselves in this work is a veritable punishment for a more lively nature; and,

if more vigorous measures be not taken here, it must then bring its own retribution. Nor could any harm be done if the officers should regard 'grubbing' with less sovereign disparagement, and should learn and perform somewhat more in this domain. But, good Heavens! everything that at all reminds of this 'unmilitary, plebeian work' is odious, as if it were thought 'more military' to let ourselves be shot to pieces on a plain than to use the 'grubbing' means of keeping ourselves fit for fight.

The Instructions for Field Fortification of the 6th of April, 1898, deal also with this matter, for they say in 1: 'Also in the attack the entrenching implement may find useful employment towards holding fast and strengthening sections that are won'; and in 45: 'If labour has to be done under hostile fire, the men of the skirmishing-line that are supplied with spades, laying aside their rifles, first of all throw up a cover for themselves, and then hand on the spades.' Certainly one will have no right to expect too much from that in the attack, but always thus much, 'to preserve our own power, so as to parry every counter-stroke.' And perhaps later on, if favourable circumstances allow us to push on the skirmishers' trenches nearer, we may succeed in getting to a much more effective fire position. Military history does not, indeed, offer any instance yet where attacking Infantry succeeded in entrenching itself while under fire at the shorter ranges, then holding out in the artificial fire position till the assault, and taking part in the latter. General Skobelev, at the 'Green Hills,' reached the farthest point yet attained in this; but the labours were made very difficult by the stony ground; the Infantry was unpractised in them, tools were wanting, much time was spent in consequence, the troops suffered great losses, received no reinforcement, and had to retire. One is not to expect all these impeding circumstances for the future; but still it is a difficult problem for the assailant to form entrenchments under the enemy's fire. Before all things it is necessary in such cases that a strong second line be present in rear of the entrenching troops, to prevent their labours being disturbed. Nevertheless, my view is that, if the troops were sufficiently practised, adequate preparations made, and good

consideration taken, it would, for instance, at the Mance Ravine have been possible to establish at about 600 metres from the main position an entrenched firing-line, whose effect with the rifles of the present day would not be small, even if the attacking Infantry had to pause at about 800 metres. Fire may, under such circumstances, be very effective both against the skirmishers and against Artillery of the enemy, and against the reserves. Certainly that will depend in the main on the relation to each other of the contours occupied by the two sides. It would be foolish to reject on principle entrenchment and distant fire, even under these circumstances. The letter ought never to kill the spirit; and I have already said that it would be unwise to possess a long-range rifle and be unwilling to make use of it in this sense.

I have not the intention of making here statements in detail as to results of fire at long ranges, so far as they might be established from German experiments. I will only make mention of one circumstance. In France the currents of opinion in favour of distant and short-range fire respectively are far more directly opposed to one another than in Germany, where the maxim was long ago reached, Both distant and short-range fire—according to circumstances. In Grenoble in the summer of 1898, 50 hits were made from 800 shots at 2,000 metres. Now, in the fight, one may indeed reckon on no more than $\frac{1}{10}$ of this result; but imagining the shooting to be continued for some little time, one might still draw the conclusion how dangerous Infantry can become to Artillery at very long ranges; especially as the above result in hits can by no means be called the best. But if this cannot be contested, then there is here a further reason for the correctness of my view, that from the beginning deployment to the whole of the front must be adopted with skirmishers, so that it may be possible to derive from the rifle every momentary advantage, according as marks offer themselves. Whether fire is to be used at long ranges depends mainly, then, on the way in which the marks present themselves to the Infantry of the attack. It is true that firing with a high sight is something of an obstacle to this; but also in this relation Tactics must still await important progress in a future not too far off.

Now the Musketry Instructions say further that a hit might be expected from every shot at 250 metres at all marks ; at 350, at a kneeling man ; at 500, at a file kneeling ; at 600, at a file standing. This, in connection with the elucidated penetrating power and breaking-up effect of the missiles, seems to me to establish on the whole the limit up to which as a rule it is possible to advance ; that is, up to 600 metres. Let us but bear in mind that the rifle 88 excels by perhaps 3 to 4 times our earlier needle-gun in every bearing that relates to results of fire, and that the zone of annihilating fire, which in the case of the needle-gun was about 200 metres, begins already about 600 metres.

Further, the rank and file ought to be proficient in judging distances up to 600 metres ; much greater value is put on training in fire suited to the fight, and also there has been a considerable enhancement in the hitting accuracy of the rifle 88 : all which things testify that as a rule the fire fight will find its limit between 600 and 800 metres. So the surgical inquiries and the ballistic experiments made in reference to small-bore rifles lead, without coming anywhere into contradiction with each other, to the same final result. And this is confirmed in all points by the smokeless powder.

Further, the Musketry Instructions say that, 'regarded simply from the point of view of the precept of musketry, columns at distances beyond 1,000 metres are jeopardised in considerably higher measure' (than lines, Author). But the Musketry Instructions draw this conclusion not from the greater penetrating power of the missiles, but from the configuration of their trajectories, their angles of descent, and their dispersion. Now, it would indeed be folly to keep these questions open in future, and to say, These are peace-time inquiries, they are no results of actuality, they have no value, or but little. As a matter of fact, the host in 1870 was without all the information established from private and official sources which we now have ; and the military authorities cannot possibly have it in view to make them known, and at the very same moment abstain from following and observing these lessons. Nor are they doing this, as we learn from the spirit of the Musketry Instructions and the regulations !

Besides, we are not merely in possession of 'peace-time inquiries,' but the situation is such, that the investigations which have been instituted with the new rifles ratify on a method of scientific empiricism, at every point, in enhanced degree, what was forced on us with the Chassepot in 1870, though we were then in no position to recognise the causes of those phenomena, or to get any satisfactory insight into the intrinsic processes on which the effects of fire depended. Thus military experiences are the soil whence has sprung *post bellum* the modern state of science, and consequently of Tactics. Such is the posture of affairs! For the ballistics of musketry made a first general appearance after 1870, on the basis of the phenomena of that war. And the services thus rendered to enlightenment have since been greatly to the advantage of Tactics. But to possess enlightenment and not to observe it would indeed be obvious folly. And it is just because of enlightenment that training, leading, and all powers of a scientific-moral kind, keep their value for the real employment of what investigations have taught, that is, for the Tactics of the field of action.

If the experiments of the one side (Musketry Instructions, Regenspursky) establish that beyond 1,000 metres columns are jeopardised in higher measure, and according to the other side (Bruns, &c.) the same projectile up to 1,200 metres still penetrates 2 to 3 limbs, we can hence draw but one conclusion, that under 1,000 metres these twofold arguments prevent us from employing columns in every situation where the adversary has in front of him such fields of fire. Now we learn further from the investigations of the one side (Musketry Instructions), that even up to 600 metres a hit may be expected from every shot at a file standing; and of the other side (Bruns, &c.), that at 400 metres 3 to 4 limbs are penetrated by the same projectile, and the wounds at about 300 metres very severe; so it again follows from both that columns also on these fields of fire can no longer be employed, because they would multiply the losses three and four fold. Respecting the relative phenomena between 600 and 1,000 metres precise statements are wanting, yet it may be assumed that at those distances they are similar; consequently it is

all over with movements in columns and lines in close order at all ranges. He that lays this to heart will experience the least disappointments. Thus from 1,200 metres down only one formation can be applicable for movement, namely the opened line in single rank, wherein however one must endeavour to avoid the disadvantages of opened columns. For these opened lines, whereof the one would have to follow the gaps of the other, are nothing else than columns with great distances between their ranks. The demand here made will probably not be entirely carried through in actuality ; but still every officer must have come to a clear view on these matters before he goes to war. He will then be at pains at least to make a shift with rational measures, as far as may be. It will not be possible in this way to get rid of all difficulties. Nor may a warrior aspire to that. For then it would be no longer—war, but mechanics regulated by instructions.

V. OF EXTENT OF SPACE IN THE BATTLE, UNITY OF METHOD, AND THE LINES

THERE is no point of experience which in peace is so much transgressed as the extents of front proper to the different units. The exercises in peace time, where comparatively small forces are concerned, and our way of fighting by detachments, which is *sans phrase* promoted by the Task method, give support to the evil, which is perceptible, moreover, in all armies. But the evil brings great dangers to view. For in war that happens which is practised in peace. Assume that every leader, from the division down to the company, were accustomed in peace to spread out according to circumstances, that is, in some sort 'according to taste'; to make arbitrary use of country, so that, by turning, outflanking and enveloping, they declined the frontal combat; in such case one must not rely on the prescribed extents of front being adhered to in the pitched battle, and on the troops being at the places where the leaders wish to have them. One comes then to the phenomena appearing at Gravelotte on the right wing and centre, and so forth; that is, to no frontal deployment. But extents of space are the only limit marks for any sort of leadership, superior and inferior, in the pitched battle. Therefore every effort must be made, too, to adhere to them, unless Tactics are to be sacrificed to boundless license. That no leader may then be made any longer responsible for the execution of his Task is a consequence, simple, logical, Tactical and legal.

Task, extents of space, country, and strength of troops are mutually connected. That is, an order for the fight must always correspond with the three other points of view, and leaders and troops must be practised to fight straight to their front upon the space allotted to them, while taking full

advantage of all cover the country affords. Displacements to the flank, then, may ensue only within the limit to which the front of each unit is to extend, not over the ground assigned to the whole, or indeed beyond it. Now it is peculiar that, despite the clear instructions in regulations, all armies deviate from the regulation extents of front, and go beyond them. The evil is like a sickness, and the sickness seems to have arisen through concern regarding the frontal combat. We must learn, above all, again to execute the frontal combat in masses. But that is impossible unless a fast hold be kept on the relative extents of front. For without this there are no Tactical data for space, distribution of the troops and their alignment upon it.

A brigade may exceed the frontal space of 1,400 metres only in the extremest emergency ; for example, where there is an outflanking or enveloping movement. But as we are here dealing with fighting method in the pitched battle, these cases can only be exceptions from the rule. For organisation in depth it is not necessary to fix a maximum limit in express terms, because, among the conditions determining just that organisation, the nature of the country preponderates, and in this there is great variety. Moreover, with the maximum limits of 250 metres between the several supporting lines, there results of itself for the brigade an average organisation in depth which is about 1,200 metres. It may in some circumstances be considerably less. This area measured by breadth and depth must be taken into consideration by all battle Tactics.

The Task method of the present day, however, gives countenance to the transgression of area in breadth and depth. When combined with the launching of troops by dribblets, and the jeopardising of the Tactical object, consequently also of coherence in the action of the combat, the method may become absolutely calamitous. And it may, owing to deficient preparation for the fight, prevent the desired Tactical advantage being drawn from the initiative of the subordinate leaders. To obviate all the dangers will not always be possible, but indubitably the most effective remedy lies in unity in the action of the combat on the part of the brigade.

Where the organisation is in wings, 700 metres fall to the regiment for breadth of front, 350 metres to the battalion, so that from the very beginning 4 battalions are in requisition as firing and supporting lines, while 2 may remain in reserve. But this would of necessity not always be the case; it is only one of the possible cases, certainly in all frontal combats one worthy of recommendation. Circumstances which are attributable as well to the country as to the object and to the Tactical situation may make it advisable to deviate from this, but that will be rare in every serious frontal combat. The battalion may find it expedient at once, for its full breadth of front, to take forward one whole company, to form a firing-line. As a rule, however, it will employ for this purpose one full *Zug* from each of 2 or of 3 companies; yet never from 4 companies, because, apart from other objections, this would cause the initiative of the subordinate leaders to be curtailed in important degree, if it were not made quite impossible: a quality which consists principally in the adroit use of country until the assault. As a rule 2 or 3 companies would be advisable, so that each company might have a fighting-space of 175 or 115 metres respectively. This space is somewhat large. But it is expressly required, on account of the initiative of the subordinate leaders in the unit method. In the case of 3 companies, 3 opened lines would result. The 2nd and 3rd are not tied either to any one distance (maximum 250 metres); or unconditionally to one formation (opened line, small columns in file or in sections, in close order in two ranks), or, finally, to one method of progress (marching, doubling, advancing by rushes, stooping, crawling). All these circumstances, which come into question in the execution, must be committed to the subordinate leaders to arrange, while the battalion commanders would have principally to superintend the adherence to the allotted space and the unity in the business—though not identity of means—of their companies, and that again in relation to the whole body of the brigade. That this proposition has also its limit need not be said now.

However multifarious country turns out, yet an equal variety of aspect appears in the means for maintaining intact

the unity of action of the combat, and attaining the object of it. How the 4th company of each battalion is used, whether in one opened line, whether in two or three with full distances, depends on the circumstances, principally on the question where the company is needed. The same holds good of the reserve battalions; it is here especially that the Tactical aim comes into discussion. Their application and leading take, indeed, a more difficult form than in the earlier fighting method. But the continuous forward movement has remained characteristic of the attack. This, to be sure, not at one stretch up to the assault, as in former days; but with many halts, by fits and starts, as is proved by the fine example of Colonel v. Wechmar; see Kunz, Fight at Nuits. However difficult it may be to quite reconcile certain points of view, these would by the means mentioned be at least regarded up to a certain degree: such points of view are, of a powerful development of fire from the first, the possibility of using country through the subordinate leaders, the subjection of the whole hostile front to fire, the unity of action upon a certain space, and the support of the firing-line from the rear, this by detachments already organised in the way most expedient for delivering fire, and in a formation that gives most protection against the fire of the enemy (opened line). We preserved the initiative of the subordinate leaders, and unity of action of the combat within the brigade. Till before the assault guidance rested with the superior leaders; and it was only from that point that it would be taken from them by the subordinate ones.

I consider the mixing up of *Züge* within the company, that of companies within the battalion, and that of battalions within the regiment, as so obvious, and—at the present day—so secondary a circumstance, that though it does indeed demand attention, yet it can never be decisive. All the rank and file of one regiment must be able to fight with proficiency within the limits of it, independent of the question where they are, or who commands them. With frontal combats it will not fail to occur that the brigades of one, and even perhaps of two, divisions, have to fight on about the same area. Even then the mixing up of different regiments ought not to abolish

the unity of action of the combat. But the matter of concern first and foremost in every attack is a development of fire at the right time, and as powerful as possible. Or, in other words, the majority of the unit must from the beginning be launched with the eye adjusted to this point of view, and the numerical strength must be kept up sufficiently for the execution of the combat. To-day the firing-line of the Infantry is in similar circumstances with the First Line of the Cavalry. What is not done by this will only rarely be brought about by the Second and Third. For that reason the First is made as strong as possible. For now the decision of the Infantry combat rests in a certain degree in the firing-line; the stronger it is, the better. Rifles that are not used for shooting are of no advantage; and a small-bore rifle requires a method of employment different from that of the flint-lock.

If anyone assert that it is faulty and impracticable to allot to a company a space of about 175 or 115 metres respectively, because such a body can be neither supervised nor directed by one man, to him is to be answered, in the first instance, that since smokeless powder was introduced these spaces can be sufficiently supervised, if the country in other respects permit, which in former times, to be sure, was not the case. So far, then, the small-bore rifle allows, in the case of the subordinate leaders, a larger extent of space. But, as regards the directing of troops while under fire, let us form too low rather than too high ideas of that. According to my experiences of war, the word Guidance has no longer any justification beyond the group, inasmuch as this has to do what the 'moment demands.' Every larger body falls away of itself from its leader's influence; he operates only on his nearest surrounding. Co-operation of the groups is possible only through co-operation of their leaders in the spirit of the *Zug* leaders; co-operation of *Züge* only through co-operation of the *Zug* leaders in the spirit of the company leader. And beyond this, in the firing-line, nothing! Thus every attack movement demands, in the first place, efficient leaders of groups and of *Züge*. But it is possible, indeed, that several *Züge* abreast may keep the direction, if they have learned to do so in peace, and if space and direction are specified for the

particular case, to arrange which is a matter presenting no great difficulties.

I believe, moreover, the method of fighting will compel an enlargement of space for brigades ; I have therefore set down 1,400 metres breadth. On the other hand, I think for divisions the spaces will be somewhat shortened, and those for army corps remain unaltered. Thus we get 1,400, 2,100, and 4,000 metres. This is simply attributable to the absolute need to fight from depth, combined with the great decrease the firing-line sustains, and the endeavour to continually keep at the greatest strength possible a frontal firing-line.

How many men of their own companies, then, had the leaders of companies still with them when the assault took place at Froeschweiler, St. Privat, Loigny, notwithstanding the fighting method usual at that time ? Perhaps 10 to 12 ! All else belonged to other companies. But now, why in that case aspire to something that has already shown itself impracticable ! To be connected and to co-operate are different things. Organisation of division, brigade, regiment, battalion, and company we want for the forming up and for the deployment. For the execution of the combat we need no longer anything but hordes, that is, groups capable of guidance. Their compass is in general the space of the regiment. Their unit is the regiment. And the closing together may no longer be bound to any formalities, beyond what is qualified for attaining and evincing power in the assault. The distribution of leaders is the regulator for it. And the man listens herein to the nearest leader ; no difference being made whether he know him or not.

Probably it need not, at this stage, be said how difficult it is to maintain the coherent method, because every case wherein that is to be manifested requires to be conducted in its own special way. The difficulty and the diversity consist preponderatingly in the variety of country presented by a battlefield. And herein lies the most telling objection to a so-called 'normal method of attack.' For that reason also the higher leaders will but seldom, and exceptionally, have been able from their own view to gain an adequate knowledge of the pieces of country their units are to tread. But indeed

their view will amply suffice for the general conception (idea), so that they may give a sufficiently clear order to the subordinate leaders. The kind of activity shown by the adversary further enhances the difficulties of coherent method ; for it too may have an effect of surprise, similar to that produced by the configuration of the country with which the fight has to do. Thus the 'finer work' in the method of unity lies upon leaders of all ranks under the brigade commander.

We employ, then, Task- and Unity-Method. And we may demand only maximum limits, so as to be at all able to provide the conditions for spontaneity, within a really considerable area. From the simple ditch to heights standing in sharp relief, from the hedge to close thicket, there may be great variety, which naturally has its influence on movement. Differences of elevation may again occur in varied form ; and, besides, they may lie closer to or further from each other. The area will therefore offer obstacles to movement, and cover from view, of the most various sort, which are unknown to the brigade commander. To make use of these, however, within the compass of a coherent method is one of the principal tasks for the spontaneity of the subordinate leaders. But the formations for movement, in which the coherent method should come to expression, must thus prove also very various ; and therein absolute freedom must be allowed to the Tactical judgment of subordinate leaders. Whether it look beautiful and result in a figure rounded off, or not, is matter of indifference, provided the irregularity of formations answer to the Tactical value offered at that moment by the ground. I say at that moment, that it may be acknowledged that the different moments, under some circumstances quite long ones, require for the same body measures also that correspond. Thus every Tactician should, in the first instance, ask himself the question : Can I see ? that is, see a piece of country, as it should be regarded in Tactics. A clever and witty person declared concerning the painting of a great nation, that it fell short because that people had forgotten how to see. Perhaps the coherent method is opposed because country is regarded too much from the point of view of

equality, and by this again the plain alone is often understood.

Coherent method ought never to go so far as to claim identity of formations. But identity, according to my observations, has in a degree developed itself in the case of the Task method. It is not in the essence of this method, and was not presupposed by its former advocates, to whom I myself belong. Binding instructions do not indeed exist; perhaps just for that reason a normal method has evolved itself. Hence I conclude that the subordinate leaders especially are not allowed that freedom, or they do not understand how to use it, which the combat by masses of skirmishers demands. The Tactical individualising of the rank and file does not suffice; the individualising of the leaders, especially of the subordinate leaders, must be promoted in higher measure than hitherto may have been the case. Yet it is clear that the regulation use of the brigade in wings must, within the proposed maximum limits, leave again to the wings themselves that Tactical freedom which is founded on the circumstances; with the aim, however, of observing the best co-operation between the two in accordance with country and so forth. Hence movement will of need exhibit great variations.

I feel that on account of my views concerning extents of front there will be a collision of wits. For here lies the germ of everything important to the Infantry attack. It will be said the extent of front is too great. The resulting 'thin' line of skirmishers will be condemned. The advantages and disadvantages of the 'thin' and 'thick' line of skirmishers will be further discussed. It will be said that by my proposal the mixing up of bodies of troops would be supported, and that the famous 'closing together' is impracticable. I reply: All this is hoary theory; and in this matter I appeal to the judgment of men who have experience of war, who have been through obstinate fire fights.

For the execution of the combat, that is, for all stages from opening fire up to the assault, there are, besides the reserve, no longer, as a rule, anything but lines. Neither for *Züge*, nor for companies, nor for battalions of the same regiment, is our regard then required. We know that inter-

mixing cannot be averted. So we must, from the first, produce the conditions for a fight with bodies of men mixed up together; and by deducing all consequences from that, we shall be learning to rule disorder in the complete intermingling. This is the essence of the horde method. It demands, first and foremost, space. Space for keeping busy the whole of the enemy's front, and for covering the lines in rear; space for freedom in the use of country by the subordinate leaders; space for the change from 'thin' to 'thick' line of skirmishers; in short, for leading on the supports till before the assault, therefore up to the principal fire station.

The best foundation for all this is furnished from the beginning by extended companies abreast. If no scheme of attack be formed, these companies must from the beginning keep that breadth of front which falls to them by the division of the brigade space. Then one may speak of spontaneity as to the method of progression (crawl, rush, double, rapid pace), and of using country. So space is the preliminary condition for the necessary freedom of the subordinate leaders. If another method and a narrower space be chosen, the making full use of country is reduced under some circumstances down to naught. For, if there be no room for allowable displacements to the flank, how is full use to be made of country? I have admitted that a company in a skirmishers' line is not capable of guidance by one man. But all rank and file, and all leaders, may from the beginning have assigned to them a provisional object of attack, towards which they are to work. The mind is by no means to entertain the notion of keeping the skirmishers, during the advance, dressed as on a cord. If the subordinate leaders are to fully use the ground, and the situations, then within each line, in the whole depth of the brigade, differences in the alignment must result; one part may come forward more slowly than the other. It will also be impossible to guide the individual *Züge* as on a cord by means of one man. The *Zug* is too broad for this. But all the surer success attends the guidance of groups up to ten men, especially if this be regardlessly practised in peace, and

if at all times the leaders, from the company down to the group, maintain a connection with each other somehow like points of alignment. This is all that one can nowadays be willing to understand by an advance under guidance. Certainly the pre-requisite for this in peace is that the limits for the wings of the brigade be made clearly discernible.

The freedom which I claim for the first opened line must be secured to each that follows. Nay, it may be appropriate for them to deviate from the opened line, if the circumstances make it advisable. Also the gaining of favourable advanced points must be permitted, as a provisional measure, and within allowable limits, without regard to the dressing of the entire line; the operation taking place as promptly as possible, by a quick forward movement, and a thickening of the line. I am convinced, too, that all manœuvres offer opportunity for proving that an attack method of this sort is possible.

If the space for a brigade deployed in wings be assumed to be roundly 1,400 metres, and if the maximum distances between the lines be fixed at 250 metres, this deployment would give a depth of 750 metres. To this would be added the distance up to the enemy, 600 metres, giving 1,350 metres for the whole surface; an area which in open country the brigade commander may well look over.

Now one must form a correct idea again of the so-called guidance of the subordinate leaders. What is seen in peace is in most cases impracticable. While black powder was used, it was in some circumstances impossible for the subordinate leaders to produce any effect beyond the men even in most immediate proximity to them. With smokeless powder this has no doubt improved. The best guarantee, however, for guidance lies not in the mechanical marking out of distance; but it rests in the Tactical education and training of the subordinate leaders and the corps, especially in the law of the spirited yet considered advance, accompanied by a continuous attention that is mutually exerted between leaders and men. Above all the extension of strong forces from the first gives the advantage of subjecting the whole of the defender's front to fire by means of a powerful skirmishing-line, and of not

only gaining a greater effect for the assailant from the start, but it is also, with the mixing up of different companies and battalions, at the same time made possible from the rear to secure, up to a certain degree, that there shall be a permanent distribution of leaders on the whole of the fire front. For without this distribution of leaders—not according to the units they belong to, but according to Tactical needs—there is never any superiority of fire. This regulating of leaders, within the sphere of operation of the subordinate leaders, we absolutely must have, and it is only from the rear that it can, along with fresh troops, be in some degree attained.

The four brigades of an army corps will only in rare exceptions fight abreast, with a frontal deployment of 1,400 metres each. These spaces, therefore, are reduced in so far as the divisional authority becomes a regulator within the army corps. The result would be for the division about 2,100 metres, including the Artillery, as a general datum. The breadth will be extended on the wings; figures cannot be given here; the pressure of circumstances decides. No important increase of space ought surely to happen, and an army corps should only claim about 4,000 metres.

In the apportionment of space for the company, the latter is assumed to consist roundly of 200 rifles. It must, therefore, find many an occasion for freedom in use of ground; but, above all, its comparative breadth makes it possible to lead the supports after it, covering on the gaps where they have to fight later. And that is a very important point of view.

It is recommended that 250 metres be the maximum limit for the supporting lines. Yet it may be advantageous to allot shorter distances, which would be a matter for the leaders of those lines, and to forego the opened line in single rank if the ground permit. Now since, however, there has been a considerable increase in the intermediate space where both sides are firing at short range, and since that will vary as a rule between 600 and 800 metres, and since, on the other hand, the perfecting of the rifle and the greater effect of Artillery give the firing-line a greater power of resistance, thus the maximum limit of 250 metres cannot develop any sort of risks of

the supporting lines interposing too late. No good corps, indeed, will already run off if a counterstroke develop ; but if the epoch of the counterstroke begin, one may reckon with certainty that the first supporting line will have inserted itself before the fire space between the opposed sides has diminished to 300 metres. In most cases the second supporting line would still arrive at the right time, in individual cases the third.

The real difficulties begin only at 600 metres from the enemy's skirmishing-line. Then the chief matter will have to be committed to the subordinate leaders ; the higher leaders must occupy themselves mainly with the employment of the reserve. The reserve may be kept as far as 500 metres distant from the last line of supports. In the course of execution of the combat it may be pushed on nearer ; nevertheless, at the exclusive disposal of the brigade commander. It must, however, at one stretch, and in appropriate organisation, traverse the way for bringing about the decision, as did Starkloff's Wirtemberg Brigade at Froschweiler.

This deployment is dictated for three reasons : 1st, that it may be possible to subject the whole of the hostile front to fire from the first ; 2nd, that the direction of attack may be definitely fixed ; 3rd, that the most natural way may be used for bringing up the supports and inserting them with fresh distribution of leaders, a thing which as a rule can only be done straight to the front. The opened formation, and the great distances between lines, are necessary on account of the flat trajectory and the penetrating power of the missiles. Such measures will not, indeed, enable one always to prevent it occurring that within 1,350 metres one man stand behind another ; but in most places that will not occur. On great battlefields also, there will in this extent of depth come indeed to light sundry pieces of cover, which must be used. Nevertheless, not all losses in the lines in rear can thus be avoided ; but who would aspire to that ? This fighting from depth has the further great advantage that the individual lines can, undisturbed and outside the great zone of danger, be deployed properly for the fight, in such way as they are to be subsequently used. No other method allows that, least of all

the theory of hollows. But, unless one start from as broad deployment for fight as is that of the adversary, an effective opening of fire, and an increase of it up to superiority, are always out of the question. All this together peremptorily compels the adoption of deployment to the full breadth from the beginning. The method guarantees also that coherence in the execution of the combat which is absolutely requisite for the brigade commander; while it does not deprive the subordinate leaders of freedom to lead their bodies ahead, under cover, according to the circumstances; therefore does not take away the initiative from them.

It will not be possible to prevent the firing-line, when it has come to a halt, being more open at one place than another; but it is only by following these points of view that one attains an early and continued fire upon the whole front. Thus the opened line in single rank must be the formation for movement, and for fire, in all cases where other formations are their own prohibition. This would be the salvation of coherence of method; and that we must preserve at least until the different subordinate leaders, by using their initiative from the first fire station, which will as a rule lie at 600 metres, more and more interpose, until, again, the brigade commander makes preparation for the really decisive moment by an opportune bringing up of the reserve.

Certainly to advance in extended lines of this kind has disadvantages; but these are to be alleviated by adjusting the swarms within the *Züge* to the smallest possible dimensions, not over 10 men, and by training the inferior leaders and the men to keep straight to their front during the movement, so as to steadily maintain the general direction, by means of continuous attention and of rational mutual support. The further drawback, the mixing up, affecting even the units of different battalions (reserve included), may not deter us. One can mitigate this according to the plan of the deployment. But, apart from that, there ought to be no difficulties for the rank and file of a regiment in fighting from the first fire station on to the principal one, although they have become thoroughly mixed up. Each man has to obey the nearest leader; these are not tied to specified positions and troops,

but must distribute themselves as much as possible, ever keep their attention fixed on one another, and take pains that the thread between men and leaders do not break. Only by training of this kind is the foundation laid for that method of initiative of the subordinate leaders which is necessary later.

Supposing this advance to be employed, a danger at the longer ranges would certainly arise in case the advance took place by rushes. There would then be a possibility of considerable increase in the number of shirkers, and so of rifles deficient. Yet the principle is therefore correct of keeping as long as possible in movement; and of not making the first halt, as a rule, till reaching 600 metres from the enemy's firing-line.

The advantage which the defence gains as formation for conflict, in positions occupied beforehand, selected, and specially prepared, affords already, on a basis of inquiries hitherto made, justification to Clausewitz, who has been so much attacked respecting this point. Nevertheless, he who will overcome the adversary in the struggle must add the Tactical to the Strategic offensive.

The regulations say:—‘An attack carried with all determination up to the enemy will always succeed!’

By an ‘attack carried forward’ may not be understood the onsets made by individual companies and battalions under favourable circumstances, as those afforded by a covered approach right up to the enemy, and by mist: IInd and F./57th at La Garronière, 7th of January, 1871; 1st, IInd/57th, Beaune, 28th of November, afternoon; IInd/56th, La Tuilérie, evening;¹ and the numerous attacks on advanced posts and so forth. But the purport of the phrase is the attack by larger bodies in the *bataille rangée*; that is, by use of brigades. Then, however, coherence of method is all the more necessary; because, without that, an attack cannot be ‘carried forward with all determination.’ It was because we had in 1870–71

¹ The narrative of the taking of La Tuilérie that has obtained hitherto is incorrect. The position was actually taken by 8rd and 4th/17th. It was only after its capture that Captain v. Montbard arrived with IInd/56th, and communicated to the leaders of 8rd and 4th/17th, Premier Lieutenant Casimir and Captain v. Reichenau, that he ‘was charged to relieve these troops!’

no knowledge of a 'coherence suitable to the time' that so many attacks failed (Wörth, front; Mance Ravine).

At Spicheren the attack was indeed brought right up to the enemy at several points, by companies and *Züge* fighting a sort of soldier's battle. They worked on for hours in the intersected country, with a tenacity and regardlessness that eventually carried them through; and by their superiority in moral force they attained the victory. Nor can the attack of General v. François cancel this. For his action also, from the commencement, gradually took the character of a soldier's battle, so that the General brought only one battalion to the place where he wished the whole brigade to be. There can be cited, besides, some fine attacks made in the *bataille rangée* by fresh brigades; for example, that made on Froschweiler by Starkloff's Wirtemberg Brigade (Wörth, 6th of August); that by the 88rd Brigade on Loigny, and so forth (2nd of December, 1870); against St. Marie on the 18th of August, and St. Privat (north) by the Saxons. To the same category too belongs the stroke of the 3rd Division on the second day of the battle of Villiers; as that also of the 38th Brigade at Mars la Tour; and that at Nuits under Colonel v. Wechmar.

So this proposition has its full justification. For such exigencies may come upon every arm; and therefore there must already in peace be developed, in each individual man, the will to get forward. The position is quite the same as regards onsets made in the course of a battle. At all places where the attack was successful the brigades were from an early moment deployed in their full fighting breadth, and more; (Wörth, XIth Army Corps, Starkloff's Brigade; St. Marie, St. Privat (north), Loigny). At every place where it did not succeed the theory of hollows forbade a deployment (VIIIth, VIIth, IIInd Army Corps), or the insertion of troops ensued somewhat according to the idea of the modern Task method (IXth Corps). Certainly no fewer attacks will be wrecked in future. The further demand therefore must be made: 'An attack that does not at once reach its object lays upon commanders and troops the duty of holding out upon the ground gained. And the repulse of hostile attacks must, in such situations, be always successful as long as the troops have ammunition.'

This claim may nowadays be justly made upon all troops, provided the attack, in regard to time, object, and force, be not indeed untactical. And though this conclusion may not be supported by all examples in 1870, yet it is by very many.

The 'Impression of 1889' says, in Numbers 96 and 130, 1st part, that up to 900 and 1,000 metres fire can be poured upon columns and Artillery; and in 130: 'At great distances the object can sometimes be made out only by means of perspective glasses, not by the skirmishers themselves. The business then is, to indicate to the latter spots in the country as points to aim at.'

Further, in Number 133 it is said:—'In the course of the fight it will often be possible to carry out guidance of fire in imperfect degree only. For such cases the skirmishers must, in their training, have the rule impressed upon them that, in the absence of guidance, they can within 600 metres fire upon all objects; between 600 and 1,000 metres, only high and wide ones; and that beyond 1,000 metres in general they ought not to fire at all.'

Now the ideas respecting close ranges have, however, been greatly shifted in a short time. The distance was 250 paces with the needle-gun; 400 metres with the Mauser 71./84.; and with the 88 rifle—as well as with all small-bore rifles—it is 600 metres. Nobody will shut his eyes to the influences exercised by distant fire; but everyone will also, with complete justice, keep pointing to the disadvantages of distant fire (beyond 1,000 metres). These consist in the fact that the power of vision does not reach far enough for possible aiming; in the fact that precisely now, with multiple-loaders, distant fire leads to waste of ammunition; and no peace time subtleties avail anything against the latter fact. As regards the more flattened trajectories, the fire-swept zone contracts if the skirmisher stand on a level different from that of the country he has to sweep with his fire.¹

Therefore the regulations prescribe correctly also, that as

¹ In detail, *Lettres d'un cavalier*, February, March, April, 1893, of the *Revue de cavalerie*.

‘in the course of the fight it is often possible to carry out guidance of fire in imperfect degree only, the skirmisher ought not to fire at all beyond 1,000 metres.’

For the rest, the dispute as to distant and close-range fire will always subsist, and also the employment of both methods of fire. In both cases there are many things that can be said for and against. I am, on the basis of my war experiences, an adherent of close-range fire; and there will not be many who have at their command greater experiences of fighting. A corps thoroughly trained and of sound discipline would ever determine my judgment on behalf of short-range fire—especially in defence. An adversary who has to retreat out of close-range fire is no longer to be feared. This is absolute death to him. I have myself suffered it. And if anyone would seek after an example for short-range fire, it would be found in greatest perfection in *Beaune la Rolande*; ¹ also I know not whether the Imperial host of the French can cite a better one for distant fire. I doubt it. To-day a corps must be able to fight and to shoot in all zones of fire. But he who figures to himself, and practically tests, what is meant by indicating objects by spots in the country, will in 90 cases out of 100 say to himself that, unless the ‘spot in the country’ be just a farmyard, or something of that sort, this spot cannot be found, and cannot be fired at with successful result.

The tenacity observed in all combats of 1870–71, on both sides, has its cause in the way of fighting, itself again the consequence of the better firearms. And in that matter little change may be expected from the smokeless powder and the small-bore rifle. It is no longer possible to execute an attack, as in former times, by throwing into the combat brigades under one man’s control, so as to rapidly win the decision by storm with the bayonet. The small-bore rifles compel the use of swarm Tactics with skirmishers’ fire as the universal way of fighting. Thereby the excellence of the individual man as skirmisher must come perpetually more into the foreground; and, in comparison with 1870–71, it must also more appear that the course of a battle consists in

¹ Compare the description in Hoenig, ‘*Volkskrieg an der Loire*,’ II. Chapter V.

the combination of a whole series of swarm onsets. But on this account the coherence of action must proceed from the hand of the brigade commander. These onsets are of simple explanation. Each of the antagonists pours fire upon the other. One of them believes the superiority is on his own side, and makes a push forward, which either succeeds or fails. In the former case, he that is worsted multiplies his efforts; for the one onset is not decisive, but only gives a Tactical advantage. If the antagonist hitherto worsted feel himself strong enough to force the enemy back again, he pushes forward, and perhaps overruns the swarms stationed opposite. These give way till they find a halt, afforded either by the ground or by troops in rear, or both, upon which again is wrecked the hitherto successful onset of the enemy. The antagonist is thus brought to a standstill at least; in many a case he will even turn, for he does not always hold out under very superior fire. This is the moment when the antagonist hitherto forced back renews the onset, and wins again the Tactical advantage. Such is the course of the modern fight. This is the 'surging hither and thither,' only too apt to confuse the heads of those who have not seen the 'surging.' The number of onsets so made on both sides may be various; of which matter the principal determinants are, how the troops in rear are used, and how often the swarm line receives new power through fresh troops. From this it follows how important are, precisely, the control over the lines in rear; their distance, number and employment; what care must be used in management, as regards distribution of them, holding them in readiness, and leading them on. Also, this problem cannot be removed by the smokeless powder, but only altered, and in many cases made more difficult. The fight will in future be a skirmishers' fight composed of onsets. On the one hand it will exhibit a certain changefulness, a perpetual mutual displacement of the opposed lines, while on the other hand it shows in this changefulness a great stubbornness. The explanation is contained in human nature, which is excited by the fire, so that men have the inclination to withdraw from its operation. There will always occur cases where a vigorous and powerful onset results in the position seized being held continuously from

the commencement, till the battle dies away; the adverse attacks being wrecked thereon. But as a rule the decision is brought about gradually, by several onsets, by loss and gain of ground, and he will be most certain to win the decision who in these onsets takes care to have surplus force. To see, observe, judge, and compute that is possible only for the higher leaders. However distasteful to many this character of the fight may be, it is no use struggling against it. It must ever be kept in view; then the mistakes made in Tactical means will be absent, or indeed rarer. Nor must we denounce this fighting, inseparable from the small-bore rifle, on the ground that it 'is not decisive,' that it is 'difficult to supervise,' that it is still 'more difficult to guide.' The onset of a swarm certainly is not decisive. But what prodigious fighting-power resides in the fact that we have repeatedly seen swarms, though they may not have been in the desired peace-time condition, conduct a fire combat of the greatest intensity, lasting six to eight hours, materially destructive and morally exhausting, and after that break into the vital position of the enemy! Where, indeed, has such fighting-power existed in any Tactics? So these reasons, too, have made me, now as before, an opponent of every normal attack.

If this character of the combat, as well as its duration, be kept in mind, I should like to return again to the question of ammunition. The quicker the man shoots, the quicker will he have spent his ammunition. My suspicion is aroused by this rapid shooting (rapid fire), which by the 'Impression of 1889' has been re-introduced in place of the magazine fire; and I think it is necessary, in view of the rifle's present capacity of performance, finally to touch upon it. The phrase ought to have no place at all in the regulations; on the contrary, upon every page of them should be the words 'sparing of fire.' But if the man be trained to rapid fire, the danger is imminent that he will make ampler use of it than if he were unacquainted with it! There was sense in rapid fire with a rifle whose accurate shooting was compressed into about a minute of time; but now, when we get such great results of fire from 600 metres down that the continuance of accurate shooting is maintained from that distance,

it does more harm than good, because it leads to dissipation of ammunition. In addition, I have learnt from actuality that as danger increases the man becomes of himself more unsettled, and shoots quicker. What is the good, then, of rapid fire in the regulations? In opposition, therefore, to rapid fire, I put the claim, economy of fire.

Now a few words more concerning the Lines.¹ I have, in dealing with the execution of the combat, already declared against their retention, and have there spoken of opened lines² only. Still we require the Lines¹ for the forming up, for the deployment, and also in the case of all Tactical problems where the question hinges on a surprise, an irruption in thick weather, under favourable circumstances of ground, and in twilight. So we must be able to move also in Lines,¹ and now as before, under some circumstances, to fight in them. From 1,200 metres down the formation of all Lines¹ on an open plain should, as a rule, be only the swarm. But it may also be the line² and column, according to country and conditions of the fight. This question, and that of distances between lines,² are the most important, and have therefore been discussed in detail. However, there should never be normal distances and normal breadths, but maximum distances and maximum breadths.

Misgivings as to the lines in rear then coming too late for an attack or for the arrest of retreat must be precluded by a strong fire Line. And as to means for the correct adjustment of distance, these are better suggested by the range and the flatness of trajectory of the rifles than by time. When rifles gave, up to 200 paces, the results of fire attained with modern ones at 600, the Lines used to be kept correspondingly close. They must logically be caused to follow now at greater distance.

Concerning number and strength of the lines, it can only be said that the determining conditions are (a) to bring about

¹ [The phrase is *Treffen*, the designation for the conventional First, Second, and Third Lines [cf. for instance, First Part, I. (b.) &c. &c.; also particularly pp. 185 and 222]; whereas *Linie* is the word used to distinguish a line formation.—TRANSLATOR.]

² [German *Linie*, *Linien*; here, as generally, to designate line proper; in close or in extended order.—TRANSLATOR.]

superiority of fire at, say, 6 to 800 metres; (b) from thence to execute the blow by the entrance of fresh troops. That blow will as a rule consist, because of the great distance, rather in menace than irruption. Here is the problematic feature of the assault proper; for a closer approach by the fire Line will as a rule be impossible; and, besides, the power of lungs and muscles is not equal to traversing this distance at a run; it will rather happen that the adversary has retired before, and that the taking of the position consists only in pressing after him. I must here refer over again to the instructive examples of Elsasshausen and Froschweiler, and in part also to St. Privat. These might be the types of the future, so far as we ought at all to speak of such things.

VI. OF THE DEFENCE

PEOPLE are accustomed to say that a corps which is able to attack well defends itself well also. Military history gives indorsement to this proposition in manifold form; but it contains only few examples of troops that understood how to defend themselves well having also attacked well. For this reason the attack has been almost alone discussed in the foregoing expositions; yet it seems to me necessary to refer specially to some points of view concerning leadership which at the present day are of more service to the defence than they formerly were.

As regards, first of all, the guidance of the armies, it cannot in future fail to occur that several armies must simultaneously solve different problems in different theatres of war. Among them, too, there will be military situations that require the performance of defensive parts, both Strategically and Tactically, either as a temporary or lasting thing. The Germans, in their conduct of the war against the Republic, 1870-71, did indeed operate, within certain limits, on the offensive, Strategically and Tactically. But therein two cases certainly occurred of armies finding themselves thrown upon the defensive in Strategy and Tactics. And in both situations they fought obstinately.

These instances were, that of the IInd Army along with the army detachment on the Loire at the end of November 1870, and that of General v. Werder on the Lisaine in the middle of January, whose corps must here be also regarded from the point of view of an army.

In both cases the defender changed later to the Strategical and Tactical offensive, in the sense of combined operations of two armies. Thus, although certain mistakes may have been

made in execution, the defender, in two different theatres of war and with very diverse achievements, successfully solved in each a problem that may with justice be accounted specially difficult. Each time a great result was attained; in one case the destruction of the enemy's army.

I believe that these phenomena will repeat themselves in higher degree. I believe that the war of the future approaches nearly to the war of positions, with all its peculiarities and drawbacks. We must come to terms with this fact whether it benefit us or not. It lies in the nature of the war of the future; it is a consequence of the remarkable rôle that will be reserved therein for technique—reckoning, indeed, the better weapons too under the term in this sense. Thus the general and the corps must be familiar with all means of defence.

Cases will appear in which the commander, although he recognises the general direction of the operations (end of November), yet can hardly descry in due time where the assailant has his masses, and against what point the assailant means to fetch his chief blow. In face of this there is only one way to meet him opportunely, namely, to assemble and draw up the troops, and to prepare positions upon the probable line of direction of his operations. The IInd Army recognised the probable direction, late it is true. But for assembly too little was done betimes, and everything was neglected as to a good choice of the battle area, according to the probabilities of the case, and as to the timely strengthening of it.

General v. Werder was, in fact, regularly surprised in the operations. Nevertheless, he was able to bring up all requisite for the defence, to occupy the position yet in time (choice of battlefield), and do what was barely needful for setting it in order, so far as he was allowed by the serious impediment due to conditions of weather.

After all, the purport of each of the two problems of defence would have included giving special attention in Tactics to the left wing on the Loire, to the right on the Lisaine. In neither case was this done. The need, however, was easily perceptible from the Strategic situation. Hence it follows that correct comprehension of the Strategy will be authoritative for the

area, and within that for the points where the defender intends to fight. That is, Strategical laws continue to determine choice of the area and extent of the position (product from troops and distance).

The leader of the army will also know the line in rear of which his operations may not remain. That line results from consideration of the object he is operating to cover, and from the distance between his own and the enemy's general lines of reconnaissance, which distance may subsist for a longer or shorter time. As a rule, therefore, it cannot be particularly difficult to correctly choose the position, when there is full comprehension of the Strategy in hand in the general posture of the war. Consequently the works also can be early projected and carried out at the right spots in accordance with large aspects.

For instance, nothing worse could have befallen General v. Werder than to be driven into the angle Belfort—Switzerland. So this Strategical point of view would have been one to put in front of all others; thus the right wing should have been made strongest, and all efforts used to keep the reserve in its neighbourhood.

The worst event that could have happened to the Xth Corps at Beaune was to be divided from the IIInd Army and driven in a north-easterly direction. Therefore a determinant for the choice of position, and the strengthening of it, was attention to the IIInd Army; and so the right wing ought to have been made specially strong. These are only two situations. But as a rule the defender will be able, a relatively long time before, to light on the Strategic point where he desires to meet the assailant; and there simply according to Strategic laws to begin with preparing the position. The rest—completing the position—follows later. It is not needful to construct a formal fortress. The matter of chief concern is, rather, to secure important points with a small number of combatants, so that one may be able to make ready adequate masses for other points and other problems, which will lie, for instance, in the domain of the offensive. But in most cases a skeleton scheme may be early made and elaborated; and this may be already of much advantage to Tactics, as Gravelotte and the Lisaine teach.

For timely attainment (occupation of the position, while detaching a mass for free employment) one must choose dispositions as concentrated as possible. And this can be done if the front and flanks be reconnoitred and secured by the Cavalry, along with other arms allotted to it.

So, if the defender wish to make correct anticipations, and to already follow up circumstances while they are nascent, he must try to be specially strong in one arm, namely, in an enterprising and adequately equipped Cavalry with Artillery. Without it every future problem of defence is already in high degree jeopardised.

The army command has, therefore, to determine in a certain degree the general outlines of the position. It will, as a rule, have most knowledge. It has familiarised itself with its problem. It will be able to assign most correctly the points of support whereon the whole scaffolding should be set up. Besides, it certainly must know the country from its own contemplation of it, and not merely from the map. Perhaps this will not be always possible. The particular elaboration reaches greater and greater precision, according to the detailed information that accrues during the passage of the business from the army command through successive authorities. So the entire course leads from the whole to the particular, from large aspects to smaller ones.

Hence it follows that in the case of every authority, and of every arm, especially in that of the officers charged with tracing the works, there must exist a full comprehension of the problem on its Strategical side. That is, they must be acquainted with the intention, and must, as far as possible, embrace it with all its consequences; while, on the other hand, the Tactical advantages afforded by those outlines must be turned to account in a superior way. In these two spheres, seldom only has anything remarkable been performed, putting exceptions aside. But instead of mourning over that, and expecting from the future little better, we ought to hold fast perpetually the inseparability of Strategy and Tactics. Regarded ideally—in all essential points they coalesce on the battlefield (position) into one thing. If people have

accustomed themselves thus to think, to reflect, and to supervise, then the works also will be seldom elaborated on incorrect points; and aversion to them will vanish, because no rational man can shut his eyes to the effect. But we had not learnt so to think. Imagination was wanting. Another thing was wanting; for education did not in youth begin with the spring of every mental activity that knows what it is about; namely, it did not teach us first to form for ourselves an idea, a conception, of that which has to be attained. Thus, we cannot do without book knowledge, only not everyone need be a learned man.

The defender has been able to delude the assailant in important degree. The great examples of Königgrätz, Gravelotte—St. Privat, and on the Lisaine teach that. In the last two cases the extent of the position was greatly underestimated; in the first no sufficient notion was possessed as to the trace of the position and the strength of the defenders. So French, Germans, Austrians were—unintentionally—in execution of the same idea, able to propagate a high degree of uncertainty. With it, to be sure, was success associated in one case only: in that of the Germans on the Lisaine. The Austrians in the end fought in front of their position, and were defeated chiefly on that account, and because the position altogether was not occupied in the manner ordered, and did not so remain. Here came to view also the mischievous influence which an advanced position may exhibit (wood of Maslowed). The reason why the French lost their battle, although the Germans were greatly deceived as to the breadth occupied, was that the Strategic wing was unsubstantially disposed, and was crushed in. It was crushed in with the greater ease because it was not artificially strengthened. That caused all other labours to be thoroughly futile. A beginning ought thus to have been made at St. Privat. But the exercise of war shows that the improvement of the position remained imperfect just because neither at Königgrätz nor at Gravelotte was there a commander. So, in both cases the same phenomenon arose: at Königgrätz the left wing held the position of Popowitz; at Gravelotte the right held that of Verneville. Each was the Strategic flank, and it remained for

the generals commanding to procure the better ones of Probus and St. Privat !

Thus before the introduction of smokeless powder the defence already possessed factors that were not so easy to investigate, and brought the assailant into great embarrassments. It may be admitted also that thereon depends a part of its strength. But, although this strength, namely, the uncertainty into which it can bring the assailant, becomes to the assailant much more palpable by reason of smokeless powder, I am yet an adherent of the offensive. To be sure, the good sides of the defensive ought not to be underrated.

The defender can by the map decide the general trace of his position. From Strategic points of view the assailant also can in general feel out that trace, or base line. But something may also make its appearance which does not correspond to the spirit of Strategy ; as, for example, Bazaine's march away into the position of the 18th of August. It was at first also chosen from the map, and only later received its actual form in consequence of inspection on the very spot.

Therefore, already in former times the assailant might be in great uncertainty, according as Strategical conceptions, correct or incorrect, were in both camps determining factors. But, beyond this, the smokeless powder increases the difficulty of recognising betimes the position of defence, even if the assailant should have correctly found the Strategical base line.

The new rifles and the new Artillery projectiles command a greatly enlarged area. This circumstance (and the smoke disappearing) add much, again, to the difficulty of making out the enemy. Now for the most part, indeed, the weaker side will have to defend and fortify itself. But the defender is to-day in a condition to considerably enhance the uncertainty of the assailant, to force upon him measures that take much time, and to delude him. He will perhaps be able accordingly to arrange his counter-measures so that, despite a general inferiority in combatants, he may attain the superiority at one point.

This may be done chiefly by using advanced positions. In what degree they can be useful to the defence under

modern conditions is taught by reflection upon the battle of Gravelotte. This should truly be left for each reader to do, because one person thinks he can unfold one thing from military history, another something else. But I believe that in great battles the commander on the defending side has been only by the smokeless powder put into a condition to make timely dispositions according to great points of view; because this may afford him time, which formerly he had not, to consider any plans he may be concerned with for a counter-move of offensive Tactics. In this case the advanced positions are a means for gaining time; and this, indeed, results from calculation of breadth and depth of the line of defence, in relation to the depth of the ground in front commanded by the advanced positions, up to the line of defence. I perceive therein the principal change, connected with reconnaissances, which smokeless powder has introduced into great Tactics, and the main advantage which the general (on the defending side) can draw from it.

Considerations of space and other matters make it impossible for me to enter upon all the consequences that follow from the above for the defender and the assailant. But I refer to the views of the French colonel Langlois, who desires as a principle to put the advanced positions at 7-8 kilometres before the main position; also to the 'Militär-Wochenblatt,' 1898, Numbers 17, 18, 28, 58, 59, 60. In general I follow the views of the last three numbers of that periodical; but then main positions will have to be chosen chiefly according to the point of view of a powerful counter-offensive, and will in this case be able no longer, as a rule, to dispense with the advanced positions. Therefore we must also have adroitness in choosing and making full use of the advanced positions; also expertness in early making them harmless by an energetic method of attack. The conflict about these positions may at the same time lead to adequate knowledge being gained of the main position; that is, commonly, if the positions be about 1,000 metres from the main position. Yet that conflict may mislead the assailant in such degree as they are more distant, and in that measure would the positions be again of use to the defender's commander. Nothing is here gained by citing the examples of disadvantage, of Königgrätz

&c., and pointing out that on the 18th of August, 1870, the advanced positions had brought to the French little advantage. We are here in face of an important sphere, in regard to which we must have reached absolute clearness before fighting takes place; and I am of opinion that to this end arrangements for manœuvre may be of essential assistance. Thereby will be found also the best means for defence and attack. They must be found, for I believe that no defender whose mind is occupied with great designs will forego the benefits that advanced positions are able to offer him.

The great point which the defender will use, and which may mislead the assailant, is the uncertainty which arises in the assailant's mind and causes him to lose time. However, from this reason again there may become needful on the part of the assailant several formings up of the armies, and of the battle units. And, above all, great Tactics have now in the case of the defence the means to keep the armies separate, at distances and in circumstances that are suitable, so as to employ the one army in the offensive, according to the degree of insight and of time which the combats, and so forth, about the advanced positions, have gained. But then one would have to regard from this point of view not only the choice of the main position, but also the relation to it of the advanced positions, and the strengthening of the main position. If we thus get a Plevna, they are included; if a Gravelotte, they will have to be attacked, now as before. Only so much belongs to the realm of Tactical technique, that the advanced positions should no longer consist of farm premises and villages, but must be adapted to the country as invisibly as possible; however, woods especially, for example, may prove themselves very suitable. He who resolves on advanced positions will have to spread out in breadth as much as possible, and in that breadth strive for an irregular front: a matter again made greatly easier by the better weapons, and giving on that account also expectation of greater effect.

The 'Instructions for Field Fortification' say in No. 13: 'The arrangement and occupation of advanced positions are for the most part not advisable, but rather they easily lead to the defeat of the advanced troops, and at the same time to

the masking of fire from the main position. It is best, therefore, to use all means for strengthening one line only.' I could well agree in regard to the strengthening, not in regard to the occupying. In this matter truly the points of view of a bold army leadership are for me authoritative; but small scruples and inconveniences of Tactical technique must indeed be subordinated to them.

As a rule, it may be said that the defence is the stronger formation; but it seldom develops a great result unless this be induced by another army (Manteuffel—Werder). It always was so, and so it will remain. The strength of the defence is witnessed by Wörth, Gravelotte (intentionally, only battles in the field with free space for deployment on both sides are cited), Beaune, Loigny, Lisaine, St. Quentin, and so on. But where weapons are equal the laws can at most be somewhat shifted between attack and defence. Let us therefore stick to the attack, always, however, under the aspects of an early and powerful development of fire and the greatest possible numerical superiority. The long-range weapons offer many an advantage to the assailant. Besides, he can move often more freely than the defender. He can develop a greater fire power, though only gradually to begin with. In far higher degree nowadays than in former times he can pour his fire upon those of the defender's troops that are drawn up in rear, because the weapons carry much further. Above all, he has greater freedom in resolve. The attack will be more difficult to open and to execute; it will cost more time, and at individual points demand more sacrifices. They must be made. But it will also, when crowned with victory, develop results unforeboded.

Seldom will the defender's positions be capable of answering all requirements. Also, he will have to mass his forces at different points. His position must nowadays assume the character of a great artificial receptacle for covering the troops. These traits, which are never consonant with simplicity, and seldom with the leadership of troops, will appear unless the defender wish to suffer already in sensible degree from the fire of Artillery. The defender will have to spend a much longer time in positions of readiness, a thing that does

not enhance the moral force. And he will have to deploy a great part of his Infantry on the hither slope, mostly without cover, so as not offhand to endanger his Artillery. At special points he will cause his fire to be delivered in full power; but at the place or places of assault the assailant will be able to develop a superiority of fire power, especially if he succeed in timely ascertaining the wings of the defender. In many cases nowadays the defender will have to shun farm premises and villages; but in place of them he can throw up entrenchments with comparative quickness, and these, along with better cover from view, permit more effective action. So everywhere in recent times there have been made experiments with the plough for constructing temporary fortifications. General Morin particularly seems to have in France attained great success herewith in 1893. I have not entered upon details of technique. And there remain no longer any substantial differences in the instructions of the French, Germans, Russians, and Austrians as to the value, planning and execution of field-fortifications. Nor could it be otherwise; for the same effects of weapons led of necessity to about the same results in field-fortification. Hence also guns of great calibre will be brought into action on both sides. Thus already spoke the French instruction of the 23rd of March, 1878: 'Field-fortifications have at all times had a serious importance; since the introduction of rapid-firing weapons they have become on the battlefield a power and an expedient always useful, and often indispensable. If, in defence, they allow the minority of the troops at a certain point to be balanced, they afford to the assailant means of destroying the adversary's defensive positions or turning them against him, and further permit that he establish himself on the ground he has won, so as to make sure of his possession.'

But, whatever one may examine, every phenomenon tends forcibly to the war of positions. But that war, because the spirit of the age possesses increased military vigour, will have a course different from that of the past. Rifle and spade, regulations, instructions for shooting and for field-fortification (field-pioneer instructions for the Infantry), belong nowadays ever to each other, as parts of one activity, the

greatest possible development of fire. Therein is really merged the whole activity of combat! I hold it probable that an adequate and yet covered array of the local and battle reserve is one of the most difficult problems the defender has, particularly if he think of passing from defence to attack. The reserves, generally, must be more endangered in future than they were in the past. They will under some circumstances have very much to suffer from echelon shrapnel fire. And probably one may take it as settled that the reserves must neither be massed in the old way, nor brought up near to the main line of defence. The change to an attitude of offence, however, so as to gain the victory, requires again that masses be held ready in the neighbourhood of the line of offensive movement, while the doubtless imminent expenditure of ammunition, quite apart from consideration of the losses, will force the defender to have local reserves at hand in rear of the whole line of battle, if full advantage is to be taken of the fire power of the defence. In positions prepared beforehand artificial protections will make it possible to unite both requirements more or less. In other cases not so, or indeed but seldom. It must be conceded that the defender, especially in the opening of the battle, can as a rule develop a greater fire power than the assailant can. Yet, where the areas are great, the defender is and remains, as regards his movements and the measures he takes, under the pressure of the law of the assailant. The latter, by reason of his greater freedom, may paralyse, and in the end surpass, the fire; still, this may need more time, and at particular points cause greater losses. But so much the more considerable is the final meed of victory.

VII. OF RECONNAISSANCES AND PREPARATION BY THE ARTILLERY

It is peculiar that so much has been written concerning losses that have been suffered, and are to be expected, and especially concerning the manner wherein such may in future be obviated, while the true seat of the harm has not been touched. Consequently, for nearly two decades we have moved on erroneous ways; we have, at greater or less distances, circled round the true '*Leitmotiv*'; have done many a thing that must lead to a weak view; sought the causes where they do not reside; and where they do, have—not sought them! In this way we have deceived ourselves, to protect others. And we have, again to protect others! deceived those also who know no war, or those who were forbidden by their position to see anything outside the corps. Instead of saying straight out the causes of our losses in 1870–71 lay, as to 90 per cent. of them, only in the old peace-time jog-trot of the drill-ground, in our own insufficient training, and ignorance of our adversary's host, in the Tactics and the incapacity of numerous leaders of various ranks, and then treating these faults to real discussion, the blame has been thrown on the positions, country, effect of rifles, and so forth. But no thinking brain has been convinced thereby, since the causes do not lie there. And if one go through the series of peace errors from 1871–88, they are attributable to and trace their descent from the one original mistake, that the true cause was perhaps not named because one was unwilling to cut into one's own flesh. Thereby we have at length arrived at this point, that one will in good earnest transfer the combat into the night, in order—that it may be impossible for one to be seen, and thus impossible also to be fired upon or hit. Were all this a mere

labour *pro nihilo*, it were not so bad. But worse it is that by such means false ideas may establish themselves in a whole generation. And it will be hard to do away with that matter offhand, for men are actually alive ! The consequence of the new armament is in all great countries of Europe new regulations for the different arms, new shooting instructions, new instructions for fortification and orders for field service, with which Germany took the lead. There followed, up to 1889, France, Austria, England, Russia and Italy. The year 1888 brought Germany the small-bore rifle, the year 1889 the smokeless powder : things which in 1881, at the first edition of this work, were in part only aspired to, in part not so much as fetched into discussion. By these mechanical improvements the defence has become the stronger formation, but with the defence is gained no military decision of great result. Decision in war points to the attack. Now, if the defence be the stronger formation, it follows therefrom that the attack must take a more difficult shape, and at the decisive points a bloodier one. This is the cause why one seeks after Tactical principles and formations for it whereby the losses of the assailant may be diminished.

Now, if one go through the battles, &c., of the war of 1870-71, one perceives the phenomenon, that as a rule two main principles were transgressed throughout, and these transgressions were the cause of our 'great' losses. Of these transgressions, one was that reconnaissance was entirely omitted or insufficiently attended to on the part of the commanders-in-chief, and on the whole by all leaders, down to commanders of divisions, and even brigades, where they had independent tasks ; the other was the deficient preparation by Artillery before the main bodies of the Infantry were launched.

We have, for example, the deficient reconnaissance on the 16th of August, despite the fact that before the Xth Corps arrived the German cavalry was on the field of action, whereon the battle later had to be fought, and had been for hours close to the enemy. Hand-in-hand with that went another disadvantage, namely, that the system of reports was not seasonably organised ; so that the reports were either delayed, or arrived in inexact state, or, lastly, were not rendered at all to that

leader who, according to the condition of affairs, ought to have been informed in the first place.

On the 17th and 18th of August we have the no less striking phenomenon that the abundant cavalry did not timely ascertain the extent of the French right wing, although the intention was to fight the decisive battle.

We have, on the 1st of December, the occurrence that Bernhadi's Brigade behaved still more awkwardly than the 5th Cavalry Division did about midday on the 16th of August. Reconnaissances and organisation of the system of reports must, then, first of all, and always, go hand in hand.

In both respects Napoleon is still ever a peerless type. And, notwithstanding the other matters wherein he has served as such a teacher to the Germans, they had in these directions learnt little from him. Should this be by anyone not immediately credited, let him realise Napoleon's nimbleness before the battle, his reconnoitring rides, his exertions, and even bodily labours and toils (Jena, Borodino, Dresden), that he might himself see all of importance concerning the adversary before he began the battle. Not until he had proceeded thus on the basis of reports received, and had in his rides initiated his staff into the state of affairs, did he come to his final arrangements, and then these seldom missed their effect. Now, in excuse for the Germans in 1870-71, I must, to be sure, allege that of those battles against the Empire which are of the greatest importance, only 3 were fought by design of the host's guiding authority: Gravelotte, Beaumont, and Sedan; all others were against its design, as regards moment of time, forces, and objects. But grand as was Moltke's assembling of 9 army corps and 6 Cavalry divisions on the evening of the 17th of August, it would have been an inconceivable event with Napoleon I. to give, on the 17th, the order for attack without having reached approximate certainty as to the position of the adversary, and the extent of his right wing, which was not obtained till after the battle had begun. Then, indeed, the dismal experience was made that the hostile line of battle was about as long again as it had been assumed to be. To get better results there is required, not merely the appropriate employment of

Cavalry, but an agile, nimble commander-in-chief, who himself looks before the dice fall and after the mounted troops have reported. One observes little of this in the whole war. One learns that positions were ridden over after the battle, but not before it. And as on a large, so was it on a small scale. Therefore people were always in uncertainty. And then, if the subordinate leaders came upon the adversary, they attacked headlong, even in ignorance of position and strength, and allowing no time for their own consideration how best to get at the adversary. In this respect only one general managed in the Napoleonic sense; it was General v. Herwarth at Königgrätz. And to this management are attributable the fine results, with sacrifices scarcely worth naming! All occurrences that came under my view passed in such manner that I have the firm conviction those species of men that know how to reconnoitre in the Napoleonic sense no longer exist; just as the species of Cavalry leaders *à la* Seidlitz seems to have vanished from the world. Will both return?

If it be desired to cure evils, their seat must be made out to begin with, and then the right means must be chosen for the cure itself. The chief cause of our losses lay in the fact that the reconnoitring was as a rule wanting before the various collisions; in connection with the fact that an inadequate strength of Infantry went to the assault, certainly with courage, but without plan. Reconnaissance ought to extend at once to country, strength, and the disposal of the adversary. From them one may draw pretty certain conclusions as to the enemy's design; and hence emerge the methods for one's own purposes. As to these, all officers, down to the staff officer, must be informed in few words, with a view to the sphere of operation in hand, as indeed is now prescribed too, so that they know what they have to do. And if it be alleged against this that time is lacking for it, then say I, so much time was there for it in the principal case (Gravelotte), so easily because of the adversary's complete inactivity could all that have been done, that, had the superior commanders recognised and laid to heart the correctness of just these time-saving measures, a second case like it should

hardly have arisen. But what appeared as the regular thing? Brigades and divisions came up, and, even without being made to form up in the direction of the fight, they were thrown into the combat. 'Forward!' That was all that was said to their commanders; in isolated cases the object of attack was also designated. 'Forward!' That was all the information received by the officers, as far as the staff officer. Even that was often replaced merely by a sign. Such was the rule of actuality. And then an attack was made straight forward from the points where they stood, though there was as a rule opportunity in the neighbourhood for advancing under cover. There were many such cases at Wörth. It was so along the whole line of battle at Gravelotte, except with the XIIth Army Corps; and in that battle the consequences of neglected reconnaissance and Artillery preparation rise to a quite incredible height. One perceives neither appropriate formations, appropriate ways, nor a coherent guidance, so far as this was possible. Commands issued remain commands issued! This unwise and precipitate assault forward with columns, over open country, was the one main cause of our losses. If, on the other hand, real management had been used, military history would know nothing of the Mance Ravine and St. Privat, &c., as they stand; our literature of losses would not exist. Of attacks with comparatively large masses, we can only register some as satisfactory in plan and execution. Either they were not achieved, or they subsided in the 'sand,' or they succeeded with great difficulty, as at St. Privat and Wörth, &c. Then, the fact that the true evil was not discovered is the further cause of our many Tactical blunders in peace, of the whole Jack-o'-lantern literature of losses. Nay, who knows whether the dispute as to distant and short-range fire, and so forth, would have arisen at all if our troops had been led appropriately, if we had possessed Tacticians and a system of Tactics? But, if the evil be not found where it lies, the consequence always is that then the truth in military history and Tactics is put into the coffin by a whole legion of errors, that the simple demands of reason are pushed aside by learned sophism. Sophism was withal the

dominant sickness from 1871-88: sophism as regards subtlety of formation, as regards species of fire, as regards guidance of fire, as regards short-range and distant fire, and fire effect, as regards the stated number of cartridges, swarm volleys, cessation of fire, supply of ammunition, and so on, though this whole series could be settled with few words had the truth been discovered. Since 1888, indeed, we have not always found the correct ways, but the clearing of the air in Tactics since that year has certainly had a refreshing effect.

To supplement the original mistake of deficient reconnaissance, with the flood of mistakes that issue from it, there comes the second, the inadequate or entirely wanting preparation by the Artillery. It is a remarkable phenomenon that in the German host the Artillery receives so little sympathy, so little liking, and that the using of it is so little understood. Even Prince Hohenlohe has not shrunk from attacking the honour of the Artillery. What can be worse than in black and white to promote or to set up against one's own arm the reproach of faint-heartedness and of lax apprehension of the honour idea? ¹

In 1870 the effect of Artillery was, till Sedan, little or not at all appreciated by the generals. Only later was there a change in that matter. One cannot properly speak of a preparation of one attack in all the August battles. And if time had been taken at Amanvilliers and St. Privat to batter these points of support for several hours with the Artillery at disposal, I am convinced that then, though the same faulty attack formations of the Infantry were used, both places would have fallen earlier than was the case, and with much smaller losses. Had one, besides, had at this spot Tacticians who had taken into account the inviting configurations of the ground, and who had at the right time abandoned close formations, then the taking of St. Privat—Amanvilliers would not have become difficult, protracted or bloody. Also, we should have reached clear ideas and views in Tactics, whereas now the views of Tactics have been spoilt by just the wrong teachings that have been drawn from the faulty measures

¹ *Die Feldartillerie in ihrer Unterstellung unter die Generalkommandos.* Berlin, E. S. Mittler, 1889.

used. Thus art has deteriorated through the artists themselves !

Insufficient reconnaissances and insufficient preparation by Artillery are the two roots of our failures and 'scientific' errors. The second was in part a consequence of the first. If one do not know pretty nearly where the enemy stands, how he stands, and about how strong he is, there naturally ceases the first condition for an Artillery preparation that is reasonable and of conscious aim. It is then impossible for the best Artillery to fulfil its task. It is, especially if the regulating of orders be not the best, pulled hither and thither, or not used at all, or it has too many points of combat, to act against each of which it has inadequate time and power, and attains nothing because one is groping about. Unless an entirely regardless conflict be waged against these two evils we shall again experience numerous disappointments ; they will again mature other Tactical evils of a secondary kind ; and since this must be prevented, the child has here been once called by its name, without 'naming names.' Transgressions against the simplest Tactical principles, faulty measures in multifarious shapes, neglect of attention to country, the aimlessness and vagueness which, to satiety, attempted the same impossible thing in the same impossible way, the employment of formations long ago antiquated, ignorance as to the shooting-performances of the adverse weapon, these together are some points whence arose our losses and our later Tactical errors ; and though there are many things I do not assent to, and others that I directly consider incorrect and harmful, yet the genesis of the 'Midsummer Night's Dream' was comprehensible. Troops that are not led do not conquer. The artist in war (Tactician) can never make one pattern do. Pupils caricature, to radical degree, the good thoughts of the masters. Radicals, while decrying the onesidedness of others, themselves preach onesidedness in its whole polype character, till then the actuality of war brings the correction which peace is not exactly able to furnish. Unhappily, the correction is for the most part of but a dismal sort.

If the enemy be thoroughly reconnoitred, if the leaders

know what they have to do, if, in a word, Tactical guidance rule, if the moral and destructive effect of Artillery be turned to full advantage, then frontal attacks also are practicable; of course superiority of fire must first have been attained by Infantry and Artillery.

The incorrect lessons often drawn from attacks that were recklessly undertaken have in the word Keenness found their collective idea and their expression. Only, it is to be feared that this word may lead as well to over-estimation of self as to under-estimation of the adversary. Without courageousness, spirit, and resolution nothing can be attained in any situation of danger. But the champions of keenness, which has now got so much footing, are working on a wrong basis, because they stand nearer the drill-ground than the field of action. And if in war only 20 per cent of the 'keenness' be at hand which one observes in peace, especially among the Cavalry, then we may be content; only I fear that the first comparatively great fight will become a great corrective. The 'keenness' which may arise through a false view of war, which will support itself on mechanical formations and, using these, achieve the decision by regardless gallantry, represents a thoughtless tendency that must lead to bloody defeats should it be tried in actuality. It is like the senseless rule of crude forces, and therewith has never anything been attained. The keenness that we want can only be the result of a careful training and cultivation, the judicious guidance and gathering up of moral qualities, of intelligence, and of knowledge into rational Tactical principles and ideas of the fight. Its seat must be in the man's breast; otherwise we ever keep falling back into a system of lifeless and powerless mechanics. The 'keenness' of the 1st Infantry Brigade of the Guard is a fearful lesson. Only after this attack had failed did people bethink themselves that the Artillery must do preparatory work; and only now did that take place which should have taken place before. So here defective reconnaissance and insufficient preparation by Artillery brought their own cruel punishment, in an instance that was, indeed, often repeated, though perhaps not again in this degree. On the other hand, Le Bourget is an example how much had been learnt. Here

reconnaissance had been adequately performed, and keenness, as it showed itself, was of the right kind, because it rested on a rational basis and was brought into an intelligent system for the special circumstances and so forth. Reconnaissances are made considerably more difficult by smokeless powder, an imperative reason for bestowing particular care on them if one do not wish to encounter still worse experiences. Thereby the preparations for the combat will perhaps be considerably retarded. From the probability that for an army several formings up may become necessary it follows, first of all, that the independent Cavalry must as far as possible achieve superiority over that of the enemy by mass, therefore by combat. Its work is in some degree limited by the purport of great Tactics. This means that the task for it is always to ascertain as early as possible the wings of the hostile army, and by means of an appropriately organised system of reports to continually maintain connection with the army command; also report direct to the nearest general in command. Should it not be successful in early ascertaining the wings, it does not fulfil its task, but makes more difficult all further measures of the supreme guiding authority. Reports may under these circumstances be rendered by means of good riders, telegraph, and cyclists. In the manoeuvres at Beauvais and at Güns, in 1898, 2 hours on the average after the Cavalry reached its positions the brigades were united with the divisions. If one apply the modern practice to Gravelotte, one may assert that the laying of the field-telegraph could with ease go on almost *pari passu* with the forward movement of the IInd Army; and that hence the connection between it and the great headquarters ought never to have been sensibly interrupted.

Still, even though the wings be ascertained, there yet remains for the pitched battle many a thing to recover, which in relation to the wings cannot absolutely be desiered from the map. The spirited riding forward, and riding through the advanced troops of the enemy, which subsists in peace is not in actuality practicable; therefore the reports from patrols will furnish but an insufficient result. The captive balloon may under some circumstances render good services; but,

though it is already 100 years old (from the time of Fleurus), the means it offers for reconnaissance in campaign are untrustworthy, and therefore one may not recognise in it, to begin with, any remedy for the uncertainty which is propagated by smokeless powder. The captive balloon has, further, in all experiments disappointed its best adherents. In virtue of its position, fastened to the ground, the balloon, when the slightest wind blows, has to sustain sudden shocks, which are disturbing and dangerous. A perfect calm in the atmosphere is a rare exception; and how often will softened ground hinder or make difficult the following of it with the carriage, how often will thickness in the air make a distant view impossible.

Also, reconnaissance ladders are only a palliative means.

From a favourable point, indeed, a good glass may enable the leader of an army, for instance, to see about 8 kilometres on either hand; and he may therefore have a survey to the flanks. But so favourable a point is also seldom found, and still more seldom one that allows a sufficient insight to the front.

Hence, for the more accurate Tactical reconnaissance no other means will remain over except recourse to combat, and such combat, indeed, as to compel the enemy's deployment to a certain degree, from which then conclusions may be drawn. This fighting-power is no longer possessed by the greatest and best led masses of Cavalry. The Infantry, under some circumstances, cannot attain so quickly a sufficient deployment and (distant) effect as are desirable. Hence there is left, as an arm of distant operation for these reconnaissances, only the Artillery, under provisional protection of the Cavalry. Then, again, the disadvantages of advanced positions to-day assert themselves as regards the assailant. They must be fought for so that after capture the final reconnaissances may be taken in hand. Therefore it is not improbable that in a case resembling Gravelotte a whole day will be demanded by the reconnoitring fights.

Immediately connected herewith are, moreover, the questions of organisation of the report system, of distribution and employment of the Artillery. As to the former, we have

spoken sufficiently; as to the latter, some words must still be said. The experiment has recently been often made at the manœuvres of allotting no Artillery to the advanced guard, in order to avoid the danger of being prematurely dragged into deployment in a direction not desired. But yet this misgiving presupposes indeed faults already committed. By patrols, officers, and the other means adduced, not everything truly can be ascertained in proper time; still a general enlightenment will result therefrom. What remains yet uncertain here must be completed through fighting, and that by Artillery and Infantry. Now the Infantry will at this stage be seldom able, however, to force the adversary to show himself, especially his Artillery; for that purpose Artillery is required, and that in considerable strength. To lead it with adroitness on a basis of general results from reconnaissance is not easy, but we must learn to do so. The Artilleryman must therefore have a wide view, he must be accomplished in judging of the situation. Hence, assuming that the Cavalry of the advanced guard does its duty, I cannot come to any other conclusion than to allot to every advanced guard of a division an Artillery division, and to take the remaining divisional Artillery as much as possible among the main body. By seeing well, appearing unexpectedly in strength, ranging rapidly, and observing continually and well, the Artillery in future will be able to render services of a kind one could not formerly demand from this arm. Hence energetic work must be done to develop its officers' power of Tactical judgment.

Moreover, the commanders will be often obliged, on principle, within their spheres of operation, to themselves partly take the reconnaissances in hand; or, with the same object, according to the strength of their troops, employ several officers of judgment, mounted on sharp horses, accompanied by 3-4 dashing mounted messengers.¹ These are to approach the adversary as much under cover as possible, so that from elevated points, and availing themselves of good glasses, they may make out the condition of affairs, or examine parts of the hostile position from the flanks. I

¹ [Or, Intelligence-Riders; *Meldereitern*.—TRANSLATOR.]

emphasise in this matter power of judgment, very good horsemanship, quickness, and delight in daring. Where these qualities are not found together, those officers will never be able to satisfactorily solve their problem.

As an example in this respect, Count v. Häselér, the present general in command of the XVIth Army Corps, stands before my eyes. He who has learnt what service this one officer has rendered in peace and war by the union of those qualities will agree with me without more ado. Now, Häselers are no everyday figures; just for this reason one must aspire to do as well as they. But without such natures an army will not have good counsel, so far as the matter in question is the changing situation on the part of the enemy. This leads me back to the demand set up in the Introduction, which was to be established by explanation in this chapter. The demand is, precisely in the case of officers of the General Staff, to guard against their finding in living actuality too little employment of practical services, and being kept too much to a bureaucratic bent. As a rule the two bents do not agree with each other. He who is inclined to find in the latter the aim of his life will naturally discover little that is congenial in those demands on practical work which imply bodily exertion too. I do not deny that it may be difficult here always to go the right way; but that way must not be lost sight of, because too many things depend thereon which, to say the least of it, might in war occur. Field-Marshal Moltke required good performances of horsemanship, and daily reading of good newspapers. Perhaps it would not be out of place to call this to mind; for the reading of newspapers, too, as managed by Moltke, seems to subsist no longer. But I should like to point out that in peace we possess no means which furnish the same preparation for the universal activity of the officer of the General Staff as critically reading the newspapers. Their tidings are in some measure reports and accounts concerning what is undecided, often contradicting each other. These officers have there the best opportunity to continually test and practise their gift of combination; to learn to separate the correct from the incorrect; and, by their own power of judgment, to discover the true substance from the

labyrinth of inaccuracies. So far as this goes, there is no position which so resembles the operation of an officer of the General Staff in peace and war as that of an efficient editor. And the great Moltke knew exactly how to everywhere prompt the motives that led to the one great aim of the excellent officer of the General Staff: to gain a more or less just view of the truth and actuality of the situation out of many inaccuracies, uncertainties, hints, and circumlocutions, by testing these on the basis of one's own power of judgment. This cannot, it is true, in all cases be attained merely by labour; many things herein are native endowment; and one cannot always say how this and that should be done. Still, Practice makes Perfect is here also correct. Indeed, daily practice in these things is bread to the officer of the General Staff, because it requires that all powers of the understanding be concentrated on one point, and this is the vocation of the officer of the General Staff in spirit, bureaucracy, and Tactics. These things enlarge and quicken his view; they are for him daily practice of understanding and *morale*, and this not in the military sphere alone, but during peace still more in the political. Hence the latter should be mastered by the officer of the General Staff, and that also protects against a false bureaucratic onesidedness; for in Tactics change is the only thing permanent; war and politics, however, are in their essence one, inseparable and indivisible. How important it is to find what is correct from contradictory newspaper accounts, or from such as report things one cannot fully believe, is taught by the march away to Sedan in 1870. So here too the same requirement reappears in the strictly military sphere. Newspaper and other accounts are frequently causes for reconnaissances (although in the Strategic sense). Reconnaissance itself remains, however, always substantially the same; and it is therefore just the thing upon which should be ever bestowed the most comprehensive practice in great and small matters of uncertainty. Many an objection may be offered, to the effect that for such reconnaissances the officer of the General Staff is not always present. Well, I do not cling to that; only let care be taken that the reconnaissances be managed on the whole in accordance with their present and future importance,

and that one undertake nothing without having reconnoitred thoroughly. Then a second event so sad as that of Gravelotte, to say nothing about the other less sorry situations, will not be experienced. But as a rule only the officers of the General Staff will be sufficiently initiated into the governing conceptions of the authorities to conduct a reconnaissance with address.¹ Every fight undertaken without thorough reconnaissance, is a game: every attack undertaken without the greatest preparation by Artillery, is frivolity.

¹ Compare the rôle of Captain Seebeck in '*Die Gefechte von Boisscommun und Lorczy am 24. und 26. November 1870.*' Berlin, 1893. Militär-Verlag R. Felix.

VIII. OF ENVELOPMENTS

ENVELOPMENTS are as old as war, both in the Strategic sense and in the Tactical ; and great commanders have often, when conscious of their superiority, so planned the operations that the Tactical envelopment resulted of itself from the Strategic, in some sort as a continuation of the latter. To name some instances only, Cromwell acted thus at Worcester, Napoleon I. at Ulm in 1805 and at Jena in 1806, the Allies did the same at Leipsic. With the Prussians, one finds it in 1866 at Königgrätz, in 1870-71 at Wörth, Gravelotte, and Sedan ; with the French at Coulmiers, Beaune la Rolande, Loigny-Poupry, Bapaume, on the Lisaine ; with the Germans again at St. Quentin and at the operations of Manteuffel against Bourbaki, and so forth.

The introductory measures for the Tactical envelopment fall in all these cases within the sphere of Strategy, up to their highest development in complete encompassing, with the fine types of Ulm, Sedan, and Metz.

If one will study military history and apply its lessons, one must sift thoroughly the causes of each case ; and this requires, to begin with, complete clearness about the meaning of the ideas ; therefore chiefly about Strategy and Tactics, on the whole and in particular. Now it unfortunately appears as if a disposition were going to emerge which, should it become authoritative, would have to be withstood by all means, because it must, without any doubt, lead first of all to obscurities, and then to the deterioration of the military art. It is the disposition which no longer recognises a difference between Strategy and Tactics, and, to conclude from what one hears, this disposition might already congratulate itself on a large following, but would furnish us only with '*routiniers*,'

who have not discernment for the finer sides of the art, who always, therefore, remain but superficial imitators, and may never raise a claim to the title of those who discern the essence. I do not dream of writing a treatise on Strategy or Tactics in order to convert men already misguided in their mental cognition ; but those who have taught thus have incurred a heavy responsibility. I will only say shortly, that if anyone fail to feel for himself the difference between, for instance, a Beethoven symphony and a rhapsody of Brahms, this man is much to be pitied, because nature has refused to him perception, discrimination, enjoyment, and the survey, in all its gradations, of the infinite region that lies between these two, and the apprehension of its distinguishing niceties. For such men it is all merely music. For these soldiers Strategy and Tactics are merely war, and war is merely Tactics. But then their proper place is simply the barracks. Because their mind, sense, and feeling remain obtuse to all finer sounds, not therefore do these niceties vanish which constitute true enjoyment only for higher minds ; not therefore does art in its gradations vanish, but it lies outside the power of cognition of the pitiable men and soldiers in whose cases no attempt was made to awaken in time the understanding for it. If anyone be unable to distinguish between dark red and light red, and if he allege there is no boundary between them because he does not see it, yet these boundaries do exist, they are merely not to be apprehended by the uneducated eye. Exactly so is it with those who in the science of war do not recognise a difference between Strategy and Tactics ! He who does not perceive that at Sedan the measures used up to the closing of the ring fall within the domain of Strategy, should remain far away from the art ; to him is closed the realm of the military art.

Foolish, then, as it would be to deny the fundamental difference between Strategy and Tactics, it would be equally foolish to wish to keep them always separated in pedantry and formalism. But, exactly as in the highest artistic creation in any direction the sum of the departments of art comes to expression without one being able to say, Here this line stops, There that one begins, just so do the Strategic lines run over

into the Tactical in the highest performance of military art, the battle; and to go on then seeking a boundary would disclose the—mechanic. It is, withal, a perfectly logical phenomenon in military history that all commanders, whatever nation they belong to, were, in a high degree, men of æsthetic mind; were men of taste for art, sensitive, endowed with keen discernment, with clearness, and thinking power. All were artist natures, if I may so say. And in our military education, I lament nothing so much as the complete poverty in every region for the awakening and ennobling of artistic taste, æsthetic sense, and all finer susceptibilities. For this reason, many do not aspire to what is highest; their whole conception of their calling is a superficial one, and they never arrive at reflection upon the artistic side of it. Introduction to æsthetics, especially in combination with a philosophy reasonably propounded, would be a thousand times more fruitful than so many other things whereon half a lifetime is spent, things that are only attached to exterior outlines, and are obvious! Such a method of culture as that would never have allowed Strategy and Tactics to be thrown into one pot; and if it were employed people would themselves take more trouble to become artists. Now, perhaps, is the time to say this. For from what has earlier appeared, it followed already that the new discoveries have somewhat shifted the boundary between Strategy and Tactics; but also that in the War of Positions, which doubtless is to be expected, the Battle of Positions will form the normal phenomenon. Without envelopments a decision will, in these cases, be unattainable.

The natural thing is that the side numerically stronger takes full advantage of its superiority to envelop, and, down to the most recent period of military history, it has not always happened that the enveloping side had a considerable majority in point of combatants; or by any means always that it conquered by the envelopment it brought about, and by the Tactics of the superior number of combatants introduced. Hence there must, indeed, be at hand other really important causes, which bring the decision proper only after the object has been attained materially. Further, it is quite beyond doubt that in the most recent times, on all occasions from

the smallest fight to the greatest battle, the Tactics of envelopment might be called the normal, if in Tactics there were anything normal at all. And this too must have its cause. On the other hand, before the introduction of modern perfect weapons there were already cases of enveloping forces in inferior numbers gaining the victory, when this smaller number possessed the consciousness of superior fighting-power. So one sees that here, as ever, it is impossible to bring phenomena under regulation, and simply explain them by mechanics, and that one may not round them off prettily, a thing that seems ever the chief problem of peace-time military artists. But warlike history affords only advantage when the causes of the individual case are investigated and made out.

General Davout at Auerstädt, in spite of considerable minority in numbers, enveloped the Duke of Brunswick. And he might venture it without danger, because the fighting-power of the French army was far greater than that of the Prussian, or the Tactics were better, if one wish to express it otherwise. Davout did not act in any way 'as a lucky soldier,' but as a man who thoroughly recognised the superiority of the French Tactics, by reason of the better guidance and greater effect which were inherent in them; and that which to the uninitiated appeared, and appears, as a great hazard, was in fact something extremely natural, intentional, and considered. I would not say that Davout's resolve was anything out of the common, but I would, indeed, refer to the fact that, especially in consideration of Davout's unfavourable situation in Strategy (the seekers for comprehensive words will naturally say, in Tactics), this example for all times may be one of authority as to what a general may undertake without playing, a general who is acquainted with the Tactics on both sides, and for this reason knows when he may deviate from principles which are regarded by the 'Tacticians' as inviolable. To be a Tactician means not to cling to any rule, but to allow for circumstances by use of rational means, so that all the fighting-power there is in the troops may come to its effect. Such was Davout's management, and for this conscious dealing a first place among Tacticians

is due to him. I am acquainted with no example of another enveloping force which, in respect of great numerical inferiority, and success attained in spite of it, could be put beside this one; and in truth the fire power of the French Infantry and Artillery was, in itself, not superior to that of the Prussian. The example shows that if the same weapon be put into the hands of both antagonists, still the same effect is not on that account attained therewith by both of them; but that the effect depends on the use which is made of the weapon. Precisely so is it to-day! Fighting-power and fire power therefore are not the same thing, and just as one must preach against those who recognise but one Tactical pattern as regards formations, one must withstand the doctrines which in fire power see everything. Fire power is only one part, and that the material part—of fighting-power, of which other parts lie in the region of *morale*, in that of intelligence and discipline, all which ought to be in the service of a leadership conscious of its aim. If fire power had been for General Davout decisive of his resolve, he would have committed a manifest folly, for it is clear that, using equally good firearms, one can with 40,000 muskets discharge more projectiles than with, perhaps, 25,000.

Auerstädt, then, furnishes the proof that envelopments with a numerical inferiority quite considerable, and with firearms on both sides equally good, may be attended with great success, if the Tactics of the enveloping force be superior.

Now, it cannot be denied that to-day all weapons possess incomparably greater shooting-performances; but if one consider both antagonists, one will have to say that, in armament, both are about on the same level. Accordingly, things have not changed in their essence; but the better weapons shift the confines of movements and of fire only more or less far away; and this makes extraordinarily difficult the disposition and accomplishing of envelopments, that means, the success of all endeavours. I shall try to prove this.

After the French had, under the Republic, gained numerical superiority, there was perceived among them, not by way of any exception, but as a rule, the striving for a Strategic turning movement, and a Tactical envelopment following from

it, precisely similar to what may be as a rule observed with the Germans in 1866 and 1870-71, as well in cases where the numerical strength was equal as where that of the latter was inferior and superior. (See, for instance, Trautenau (28th of June), Gitschin (29th of June), Königgrätz (3rd of July), Blumenau (24th of July), with equal or inferior numbers; Wörth (6th of August), Gravelotte (18th of August), Sedan (1st of September), with superior numbers; Le Mans (10th, 11th, of January), St. Quentin (19th of January, 1871), with inferior). Already the first engagement which the Republic fought against the Germans at Coulmiers (9th of November) was Strategically conceived as a turning, and Tactically as an enveloping movement; just so is it with Beaune la Rolande (28th of November), Loigny-Poupry (2nd of December), Bapaume (2nd, 3rd of January, 1871), Lisaine (15th, 16th, 17th of January, 1871), Le Mans from the 5th of January forward. All these are examples from the war of movements. From the war of positions, Noisseville (1st day), Le Bourget (21st of December, 1870), were conceived as battles of envelopment; and, of all these, only Coulmiers had up to a certain degree success, chiefly because the German Cavalry which ought to have operated decisively upon the right wing failed with its problem. In all these cases it must be conceded to the French that each time the guiding authorities of the hosts had in their minds the project of an effective, enveloping (Strategic) plan of battle; that the superiority numerically lay in all cases considerably on their side; and, with the better rifles, they should also have had a high degree of superiority in fire power. If, in spite of this, they had no success, the cause lies in the following: that, 1st, battles of envelopment are specially difficult to direct, according to their magnitude; that they, 2nd, require an excellent regulation of orders; 3rd, much clear perception and initiative on the part of the leaders; and, 4th, a high degree of mobility, in short a training and efficiency of the troops superior to those on the adversary's side. Armies which do not tally with all these requirements win no success; and this again is strikingly taught by the Lisaine battle. Here the guiding authority of the French host was mistaken in the plan of

envelopment, as to the extent of the German line of battle, in the same degree as the Germans had erred on the 18th of August, 1870, as to the French. In both cases, as is well known, the front of the position to be enveloped came to light as about double the length it really was.¹ So the guiding authorities of both hosts had fixed their eyes upon envelopment, using a false basis. And both failed to remark their error until the first steps in the movements for envelopment had been already taken. But while the Germans by dint of superior efficiency of the armies were able in three hours to substantially remedy their mistake, and, before the 18th of August closed, really won the decision and conquered by means of the envelopment intended, the French Army of the East was in three days only able to extricate again the army corps that had been pushed together to the right, but they could do no more! The enveloping movement got into the effective direction at last; but then the fighting-power of the whole army was broken, and instead of conquering it suffered a defeat, which later concluded with a catastrophe.

Envelopment asks, then, to begin with, an efficient army, and in this an efficient Infantry with superior fighting-power. If these be present, the envelopment has led to success with equal numbers, or even with inferior (Auerstädt, St. Quentin, lastly Le Mans). If they be not present, then success may not be secured by the greater number of combatants, of rifles, and the higher fire power. For a good adversary is not shot away; but even in the battle of envelopment the Tactical point must be stormed, the Infantry must still possess fighting-power for the assault on the hostile position, although a long fire fight has preceded. This shows itself with the Germans at Wörth, Gravelotte, St. Quentin, for example, while there is less justification for citing Sedan in this relation. On the other hand, the operation on Vendôme (5th of January, 1871), conceived by Chanzy for envelopment, teaches that, of the two sides which met in the offensive, the Germans, inferior though they were in number of combatants,

¹ [The words are:—*In beiden Fällen stellte sich bekanntlich die Front der zu umfassenden Stellung etwa noch einmal so lang heraus, wie sie wirklich war.*—TRANSLATOR.]

changed, in course of the further advance on Le Mans, from the enveloped to the enveloping, and the battle, by means of the envelopment attained (La Tuilérie), was decided by use of some companies that were courageously introduced. I believe that the new weapons and the new powder do not much alter the essence of the battle of envelopment; that, consequently, the decision on the enveloped wing (or wings) demands the assault as the last action; that this cannot be much more difficult to carry out than it was in 1870, in face of the Imperial army with the Chassepot. For fire power cannot become much more considerable than it was, for instance, at St. Privat; on the other hand, the enveloper can solve his problem Tactically better than in those days he did, and he can now guide the envelopment far better on account of the constantly free view. Therefore also in future the decisive blow will not be wanting; the blow itself will be achieved by swarms, intermixed with small, more compact bodies, and here the swarm must certainly be the predominant formation, as it has already been.

Now for this the Lines will, it is true, be wanted again. Hence these must not, because they were wrongly used, be rejected on principle; but let it be merely demanded, that in particular situations and phases they be correctly used, wherein the special formations must remain committed to the discretion of the leaders on each occasion. For this purpose we must, because of the constantly free view, strive after the greatest dexterity in leading on the troops, that is, in making use of country for the approach; for that is the chief point in these things. One perceives here again that many things must work together if a success is to be won, and that envelopments to-day make even higher demands on the superior leaders than on the troops themselves. The leaders must therefore have made precise reconnaissance, and so apprised themselves of the totality of pertinent circumstances that they gain clear insight into matters while the troops are upon the march, so that, when these arrive, they may be able to reasonably instruct them and launch them. This requires high mobility in the leaders, even seeing, and Tactical perception.

If the marked enhancement of fire effect in 1866 was already the point whence the propensity towards envelopment made its appearance, envelopment will in future without doubt become still more the rule. That cannot fail to be so. If the opponents of envelopment, and of the swarm method of fighting inseparable from it, harbour misgivings in regard to the front, these expositions from military history concerning the antagonists on either side might well teach us that what people are accustomed to call weak fronts, merely because of the Infantry being there relatively scanty, have always proved themselves in actuality sufficiently strong to make the front secure when the Infantry was good, when the leaders used it with Tactical correctness, when it had the support of a numerous Artillery. Accordingly, an efficient Infantry is precisely at the present time necessary for the enveloping side, and in the front one will do well to make sure always of some battalions for contingent rebuffs. But if the condition of the troops be good as to *morale*, then, modern weapons being used, a sufficient resisting power may also be expected of the troops, in case others in much greater force should come against them. This again all the more that only by means of the smokeless powder the leaders have become able to furnish guidance in a way that approaches ideal requirements, so far as guidance at all bears upon the launching of comparatively large masses, and the community of their object. And hereby, again, Infantry and Artillery may unite their fire power, precisely in envelopment, against the most important object; and multiply it threefold as compared with former times, operating, may be, from different points, thus perhaps from front and flanks. This was a thing, by reason of the smoke, impossible in the past for either of the two arms, Infantry or Artillery. It is just from the point of view of the possible common fire guidance with the Infantry and Artillery against the decisive point, and from the circumstance that the long-range rifle and echelon shrapnel fire delivered from front and flanks must now reach the enemy's reserves, that, according to my judgment, one is impelled the more cogently in future to use the attack, and, with this, envelopment as a rule. Let not the glorifiers of

the defence grow angry at this; actuality must decide in favour of it, as certainly as it is better to have eyes than to have none.

In the attack of the future two sorts must be always distinguished: either the assailant is so placed that he can approach under cover, or he is not. That in the last case the assailant is at great disadvantage needs no word. Yet it must be emphasised that everywhere where he can take up the combat from covered positions it must become far more difficult to withstand him than before, as a consequence of smoke disappearing.

The best-planned envelopment may by foolish measures of the subordinate 'Tacticians' come in actuality to a fiasco; and for this St. Quentin is an instructive example. It was Goeben's intention, despite numerical inferiority, to envelop the right wing of the enemy, force him out of the line of retreat, and so destroy him. It is pretty much the case of Davout at Auerstädt. The unreal mode of action of the 16th Division, the delayed interposition of the 15th, ruined Goeben's purposes, so that the decision took place where he just did not want it, namely in front! But, even while the front fell, and after its fall, the mass of Cavalry did nothing on the German left wing, although it stood already, with the lead, on the line of retreat of the enemy, and was opposed only by insignificant troops. That harmony may not be wanting here, the Cavalry on the right wing, in face of an enemy shaken and beaten, acted—just in the same way. Coulmiers, Beaune, Loigny, and St. Quentin pronounce a quite annihilating judgment on the German Cavalry leaders. In the first case, it was only owing to their inactivity that the hostile envelopment succeeded; in the others, for the same reason, we did not attain what we would.

In 1866 and 1870–71 the adversaries of Prussia and of Germany never succeeded in pushing through the German front during the envelopment. Where there would have been the finest opportunity for it, at Gravelotte, between 12 and 3 o'clock in the daytime, in the direction of our IXth Army Corps upon Verneville, the adversaries did not recognise their advantage; and, from 4 o'clock onwards,

a pushing through at any point just there, though it would have still been possible then, could only have brought about a transitory success, because at that time, in rear of the first line of battle, the 2nd (IIIrd, Xth, IInd Army Corps) was already deploying. At Wörth the different frontal attacks of the French had only transitory successes, and finally they broke up on the Artillery of this side. The six attacks against the 3rd Infantry Brigade of the Guard at Amanvilliers were repulsed; and, besides, they were planned, not in the sense of pushing through, but of pushing forward. Against this there are two very instructive cases, wherein the enveloping side in superior force not only was unable to beat the adversary, but was itself beaten and its line of battle broken through. These are the remarkable battles of Beaune la Rolande (28th of November) and Loigny-Poupry (2nd of December). Both battles have a certain similarity of situation; the adversary wished at Beaune to envelop the three Brigades of the Xth Army Corps with the XXth and XVIIIth Army Corps, while parts of the XVth supported the French left wing, and were to make the most of the success hoped for. At Loigny-Poupry the enemy intended to do the same with the XVIth and XVth Army Corps, supported by the XVIIth. In both cases really two battles arose: 1st, Beaune and Juranville; 2nd, Loigny and Poupry. In the first case the envelopment of the 98th Brigade was highly successful on three sides. That of the 97th and 99th Brigades by the XVIIIth Army Corps at Juranville was not, however, achieved; but these brigades stood their ground in the centre, between the two army corps of the enemy, in such manner that these could only very late and insufficiently stretch their hands to each other. In this situation the Germans, in great inferiority, held out till towards half-past 8 o'clock they themselves, by interposition of the heads of the IIIrd Army Corps, became, despite minority in numbers, the enveloping side. There is before us here not, indeed, any intended breaking through of the adverse envelopment. But, Tactically regarded, the fight at Juranville, conducted on the offensive, had the same result. At Loigny-Poupry the French wished to envelop the

Germans chiefly from the east ; yet the 22nd Division made a timely change of front, and rendered this envelopment impracticable, while in the front the 17th Division pushed through the main position by the capture of Loigny. In that way the breaking through of the French centre really succeeded here. Both these examples have been somewhat dwelt upon, because the last one especially might exist as an almost unique case in the history of the war, considering the inferiority in combatants. It belongs withal to those cases that constitute the culmination of the Tactics of the Germans, both as regards leadership, and the fitness for service, and fighting-power, of the troops. In both battles (at Beaune and Loigny) the swarm, intermixed with small bodies in close order, appeared as a rule. The explanation of the breaking through of the enveloping side (French) lies for the most part in the high degree of the spirit of offensive still present in the Germans after a war with severe losses (1st Bavarian Army Corps, 22nd Division), and in the awkwardness of the French leadership and troops. The battle of envelopment, accordingly, can as a rule be aspired to only by a host wherein leaders and troops are on a level with the problems before them ; and where that is not the case, it is all the more necessary that the army corps, before the envelopment intended, have been formed up within themselves in such manner that the resulting line of battle exhibit no gaps into which the enveloped force penetrates, holds its own, and pushes through its enemy's front. The French always strove for this forming up before the envelopment. But in this too they did not once succeed. Therefore, that they were never successful in executing an envelopment direct from the advance it would not need a word to tell. Also they never tried to do so. So, the enveloping battles and fights of the Germans—despite a series of mistakes committed—are indeed in their diversity the most eloquent proof that this diversity can be developed only by a host of the highest efficiency, and success only so be won ; whereas the French, notwithstanding great superiority, never executed a great envelopment, not even at Coulmiers and Bapaume, for both were voluntarily quitted by the Germans after the enemy was beaten off. All

envelopments are more or less great 'combined movements,' and such are very difficult. Hence, a host that is not quite efficient does best to keep well aloof from them. But if certain Tactical fanatics declaim against the enveloping battles of the Germans, that only shows their low point of view as 'Tacticians.' And, if the same thing always succeed on the one side, and always miscarry on the other, there lies herein so telling a proof of the higher efficiency having conquered, despite our adversary's greater fire power, that it would be entirely superfluous to say anything more on the subject. It is, withal, certain that with the higher fire power now attained (small-bore rifle, improved effect of Artillery missile, disappearing smoke) the Germans will make envelopment all the more the rule. And this they can now do with so much greater security against the danger of being broken through, as our fire power has at least tripled itself in comparison with 1870-71; while that of the French can only have undergone an enhancement in comparison with that of the Chassepot. So let people remain calm, reckon with actualities, and allow to fancy only so much scope as may be reasonable. In future, not only will the same be practicable as project, but it can be better carried out, because we can give more weight to our projects; and herein, above all, a correct use of the Artillery will have to be made. If that be done, one cannot understand why, after superiority of fire has been gained, the assault should not ensue with Hurrah and beat of drum, just as well as in 1870-71. For then the very fire of the enemy no longer does the same amount of harm as before; and consequently formations can then be also employed which would be objectionable for the execution of the fire fight up to the time when superiority of fire is won. I can here too merely repeat: Scope, and no Orthodoxy in favour of either this or that kind. But in this connection one thing might be introduced for accentuation, namely, that presumably the enveloping side never can have enough Artillery for hammering the front, and that efficient Artillery. If the adversary choose wide, open surfaces for fighting, the Artillery question is a main question; and then also it will never be possible that space be lacking for the

Artillery. Two examples of the defence, wherein the Germans in virtue of the configuration of the country were in the character of defenders and envelopers, may still be cited, namely Villiers, on the 30th of November and 2nd of December, and the battle at the Mont Valérien on the 19th of January, 1871. In both the numerical superiority on the side of the adversaries was considerable; they had the intention to envelop, but all attempts to attain by combined front and flank attacks an advantage worth mentioning were wrecked on the enveloping defensive position of the Germans and the way in which the latter by Tactics drew advantages therefrom.

To say now some words concerning the enveloping fight of Le Bourget (30th of October), the three columns at the assault from north, south and east were, as to half, more or less in closed formations, as to the other half, in swarms. In this way all three columns resolutely advanced, as if by agreement, in companies indeed, and for the most part without interruption. It was towards eight o'clock in the morning, but at 1,000–1,500 metres an Infantry fire from the adversary was possible on all three sides. The adversary was really not surprised, for at the moment when the Artillery on this side called him by its fire into the defensive lines all three columns were still about 800 to 900 metres from the place.¹ None of them, however, engaged in a fire fight, but all hastened the blow. If nine battalions herein lost towards 450 men, that can truly not be called excessive for Chassepot fire and the hostile occupation, which amounted to about four battalions. As has been said, Le Bourget was an advanced post, but the example remains valuable nevertheless, and what happened here is also possible in future; only it might not be any longer advisable so to begin the envelopment from north and south, as was here the case, because then these two columns would needs inflict mutual hurt, by reason of the great range and penetrating power of modern weapons. But in other respects Le Bourget remains

¹ Particulars, v. Kries and v. Besser, History of the K.-A.-G.-G. Regiment, respecting the G.-Schützen Battalion.

classical for similar cases, and of them the future will certainly offer more than the past.

Unimpeded view, long-range rifles, and the increased effect of Infantry and Artillery projectiles, move out all introductory measures for envelopment, whether directed against advanced posts or in the *bataille rangée*. The range, however, of the adversary's rifle not exhibiting so very great an increase as against 1870–71 in comparison with the Chassepot, the change will not in that respect be so very palpable to us as in the matter of unimpeded view. From this it results, again, that the higher leaders must be in advance of their corps, so as to make it deflect betimes. If that be a main requirement already for divisions and brigades, it is much more so still for the commanding generals; for only in this way can occasions of pressing, crossing, and retardation be avoided. This is the more necessary as the improved fire-arms will naturally induce the fighting troops to make full use of fire power, that is, to spread towards the wings. Now here come in real difficulties for the higher leaders, difficulties that cannot be particularly determined beforehand, but can only be overcome by early reconnaissances, timely deflection of the troops appointed for the envelopment, circumspection and clearness, and by good regulation of orders, adequate organs for their transmission, and so forth. To quite avoid and overcome all the difficulties will not, indeed, be possible. That these difficulties must become great follows from what was planned, attained, and had to be done at Gravelotte in order to win any battle success at all. And, if one will represent to oneself a battle of the future, and nearly such course as it may follow, then Gravelotte is and remains Tactically the most instructive of all, from what the Tacticians here omitted, and so regularly evoked numerous Tactical situations of a certain danger. There is probably in the whole history of the war no battle where not merely the subordinate leaders, but also the superior ones, committed such a profusion of Tactical mistakes as the Germans did at Gravelotte. To the greatest service here, in my judgment, rendered by Strategy in assembling the armies before the battle, is opposed the worst thing in the domain of Tactics on

the German side. Gravelotte is quite a terrific vision. But if one consider what efficient generals were here, then one can hardly demand that better ones may be present in future. It is all the more a precept to learn to see things correctly, as mistakes are made by the best. Only two exceptions can be made at Gravelotte, the generals in command of the XIIth and VIIIth Army Corps. For the imperfection that occurred with the latter does not lie at Goeben's door.

Envelopments which, on the day used for the advance to the battle, resulted from the continuation of the more or less designed turning movement, as for instance at Königgrätz and Wörth, might in future more rarely appear. And I am of opinion that, if one should speak at all of a Strategic model for the battle of the future, Gravelotte might also contain that, so far as the assembling before the battle is concerned. That is, on the 1st day to march and assemble, on the 2nd to fight. Perhaps the 2nd day will again become two. In reference to knowledge of how matters stand with the enemy, after the assembly, Gravelotte is indeed no model; and, with Cavalry used as it is nowadays, one may well assume that anything like that will not be repeated. But we may also assume that the armies will as a rule first assemble, in the Napoleonic sense, before the battle; and the assailant, after the assembling, will issue his dispositions, especially for the envelopment. It will probably be but seldom possible that the two lines of battle are, before the battle, nearer than were the two hostile armies that opposed each other at Gravelotte, taken on a line through the centre, that is, from Montigny la Grange by Verneville up to our IXth Army Corps on the morning of the 18th. Having regard to this, one may say further, that assuming knowledge of the exact array on the enemy's side, the enveloping movement must begin as far back as about 5 to 6 kilometres and more from the enemy. Hence result considerable difficulties in the guidance of the assembled army. As has been said, the Germans overcame them at Gravelotte; and, because envelopment will be the rule, on large and on small scale, one should therefore study the disturbing events in the course of this battle. Those modern 'military savants' who already decline to recognise any dis-

inction remaining between Strategy and Tactics, will then perhaps get back on to the right road. They will see how in the *bataille rangée* the Strategical point of view remains, in plan and execution, the decisive and recognisable one; and how, just for this reason, the problem of the Tacticians has come to be, from the beginning through all phases of the combat, a more responsible one. But if these be not acquainted with the fundamental Strategical idea, or if they do not comprehend it, then the calamities of Gravelotte must repeat themselves in future in higher degree. Then, because of the measures it has become needful to take at a distance back, one arrives, not at a Gravelotte, in the way it worked out despite the mistakes belonging to it, but at a Lisaine battle in the way the French fought it, that is, one fails to envelop, and is beaten. And in this case the Napoleonic pushing through has prospects of success similar to those in Napoleon's own time. But if the Tacticians be acquainted with the Strategical idea, and support its performance, Sedan shows what may be won by an envelopment adroitly executed, which turns into an inversion. And if the Strategists have 'lost the thread,' the battles of Beaugency—Cravant (8th, 9th, and 10th of December) teach the anomaly of a frontal battle, whose repetition truly offers no enticement. Three days' firing here and there, and no other result, but much lead shot away and a frontal retirement of the adversary, this is no elevating picture for an army whose successes till then had been attributable chiefly to turning and enveloping movements. An envelopment may in some circumstances not have the effect hoped for; a frontal battle none at all! So frontal battles ought to be entirely erased from the dictionary. And fire does not do the thing, but envelopment with proper fire guidance. With the weapons of to-day, where the number of combatants is equal, the execution of the envelopment has no special dangers. Therefore the assailant will, as a rule, choose envelopment; and the law must completely become part of the Tacticians' flesh and blood. The many examples cited of the adversaries' troops numerically far superior, on the different theatres of war: Noisseville, 1st day; Bapaume, Army of the North; Le Bourget (21st of December), Army of Paris;

Lisaine, Army of the East; Beaune la Rolande and Loigny-Poupry, Army of the Loire, and so forth, all, under circumstances most diverse in themselves, confirm the truth that something more is requisite for enveloping than a 'good plan.' There are needed, namely, adequate reconnaissances, correct disposal of the troops, careful regulation of orders and regulation of the system of reports, and above all an army equivalent in all its parts, with an excellent Infantry. Militia hosts, for instance, will not be in a condition to execute a successful envelopment; this is strikingly shown by the campaign against the Republic;¹ and since the enveloping battle will in future be the rule, a rational guiding authority of the host will to-day have to lay all the more stress on a good Infantry. So what Davout proved already at Auerstädt repeated itself in manifold shape in 1870-71: namely, that superiority in Tactics forms the best guarantee for an envelopment. But superiority in Tactics is only possible on the basis of a superiority in training and thorough education, in short on the basis of an army superior in value; numerical superiority has less to do with this matter. Untrained armies (Republic, 1870-71) and armies led astray in drill-ground tricks (1806) remain equally powerless!

Now, as concerns the number of active forces to be brought forward to a battle, Gravelotte might in this respect also indicate the approximate limit, because otherwise guidance would necessarily only become still more difficult than it is already. Of this guidance one must not form to oneself any wrong ideas, nor expect of it any things that cannot be realised so far as the commander-in-chief is concerned. This man, as regards guidance, is properly only a Strategist still. He cannot do much more than assign direction and object to the battle units, and hold back for himself a reserve; everything else is the affair of the Tacticians, that is, commanders of the battle units. To this extent there has been in a certain sense a considerable alteration in battle guidance, for instance as compared with Napoleon's kind. For the throwing about of divisions and army corps which have once taken hold is no longer possible; but nevertheless Napoleon I. remains, precisely from the

¹ [An arbitrary generalisation; cf. footnote 1, p. 206.—TRANSLATOR.]

point of view of Strategy, the model director of a battle, and the Germans have really only once come up to him, namely, at Sedan. They ever failed, above all, in comparison with Napoleon in the reconnaissance, in the use of Artillery, with its consequences, and in the pursuit. Königgrätz and Gravelotte come near to Napoleon's Ulm and Jena. If the enveloping side be equally strong, or but little superior, it will only be able to envelop on one wing; if its superiority be as great as at Wörth and Sedan, on both. And in the latter case a catastrophe must really always be, and must always have been, the end. If, accordingly, to the guidance during the battle after it has once broken out, the commander can no longer give a form essentially different from that he desired up to the time he despatched the battle units, the envelopment affords him rich compensation for that. The compensation lies in the fact that he can from the beginning fix his eyes upon the envelopment in the most effective (Strategic) direction, and at the same time also can take care that the Cavalry is on the very spot for pursuit on the enveloped wing or wings after the decision. The possibility of the envelopment of both wings will, indeed, depend on the nature of the hostile position (negatively Gravelotte, positively Königgrätz, Wörth). Therefore, how extraordinarily Strategy excels Tactics in value might be concluded from this, precisely because the enveloping battle, according to human estimation, must become the rule for him who has any intention of being the assailant.

I have already spoken frequent warnings against every orthodoxy. I should like, however, to do so once more at the conclusion of this chapter, as far as guidance in the battle is concerned. It is said, No rule without exception, and thus also the exception of Loigny-Poupry teaches that under special conditions a battle guidance is still also possible, as it shows itself with Napoleon at Austerlitz and Lützen.

IX. OF FRONTAL FIGHTING

FINE examples are presented by different occurrences of 1870-71 to support the correctness of my view: that, if the adversary have been worn out by the Infantry and Artillery combat that has already taken place, then a blow of one brigade rightly set about is nowadays still not only capable of execution but successful also. I recall in the first place the storming of Loigny executed with resolution and partly in close order by the 38rd Infantry Brigade under General v. Kottwitz. Of this Brigade, there took part in the storming of Loigny itself 3 battalions of the 76th, and 1 of the 75th. And it was only after these had broken in from north-east and east, therefore from the flank, that the swarms of the Bavarians in front pressed also into the place. Now it is my conviction that the latter would here never have succeeded in breaking in with skirmishers, without the former. So, when the preparation, as was here the case, has ensued with Tactical correctness, then the fire power of the defender so far suffers a lasting diminution that by using the coherent method one wins the decision quickest and with least bloodshed. It is indeed a pre-requisite that Tacticians be present, and that the arms of the service be logically used, for there is a logic even in Tactics; also, that the leading on of the troops ensue with an adroit use of ground, yet then with decision. Our greater attacks have, almost without exception, foundered from unseasonableness, choice of the Tactically wrong moment, inattention to the state of the fight and to ground, and from introducing the troops by driblets. After the taking of Loigny, General v. Kottwitz brought on his 2 battalions of the 75th that were still fresh, and these with the bayonet expelled the enemy from Villours, also took this village, and with that the

battle was decided. Examples as instructive as this are not found by dozens ; with them, too, fate is niggardly. But if some few be extant, then they should also be correctly utilised.

It might also be here in place to say that if there be in the country points of direction, as here, Château Goury, Loigny, Villours, it is a matter presenting no difficulties to specify them beforehand to the troops. These can then also keep them firmly in view without misunderstandings. Certainly, in spite of this, a part of Kottwitz' Brigade at Loigny pushed through past that place upon Fougau. Where there is a quite open plain, or upon issuing from a defile into open country (St. Privat, Mance Ravine), it is still always easier to take a point of direction forward in the country than in the corps itself, which under such circumstances will seek to come under cover.

A fine counterpart to Kottwitz' Brigade at Loigny is formed by Starkloff's Wirtemberg Brigade at Wörth. It reached the battlefield when the adversary was worn out. It crossed over the Sauer by the Bruchmühle Bridge, took the direction first on Elsasshausen, and then on Froschweiler ; after taking up the firing for a short time it passed through the fighting-line of the Vth Army Corps, and broke first into Froschweiler for the most part in closed formations. The advance of this brigade, organised in three groups, with colours flying, exercised an enlivening effect on the other troops, which in part attached themselves to the Wirtembergers. During the advance application had been made to the brigade from both Elsasshausen and Froschweiler for reinforcement, so that General v. Starkloff brought it on to Froschweiler in the following order : 3rd Jäger-battalion, behind it 1st Battalion of the 5th Regiment, west of Froschweiler ; 1st Battalion of the 2nd Regiment, south ; 2nd Battalion of the 5th Regiment, and 5th and 6th Companies of the 2nd Regiment, east. Therefore, with an adroit advance, after proper preparation, the coherent blow succeeded here as well as at Loigny, and it is, then, the simplest, shortest and least bloody means for success in similar conditions of fighting ; this too when, as at Le Bourget (30th of October), the preparations are shifted

to early morning. Now herein what is the case as to losses ? The 4 battalions, minus 1 company of the 28th Brigade at Königgrätz, lost 10 officers, 190 men ; the 9 battalions of the 2nd Division of the Guard at Le Bourget, towards 450 men ; the 4½ battalions of Starkloff's Brigade at Wörth, 17 officers, 339 men ; and Kottwitz' Brigade at Loigny, 21 officers, 423 men. Now have the conditions for attacks rationally carried out undergone so very much change ? I should say, No ! To be sure, if the preliminary conditions named do not turn out right, then one will not be able to gain such results ; I refer to Maire's Brigade at Wörth, to the assault on Loigny led by General de Sonis, to the different attacks of Vivenot's, Brisac's, Durochat's Brigades at Beaune.

An envelopment without a fight in the front is inconceivable. And, often as I have warned against orthodoxy in this line or that, I must do so here also. I have already said repeatedly that really it is not the man, the company, the battalion, and so on, that uses envelopment in fighting, but the leadership. The former always find themselves using a frontal method of fight. Simply from this it is evident that the combat will and must remain in the Tactical front ; for there is nothing that can take the place of that combat ; one must only lead it opportunely and with Tactical correctness. But if, from battle leadership, and the decision, it be impossible to divorce the combat in the Tactical front, then it is a folly and an anomaly to desire the banishment of every frontal attack from the battlefield. Banish only the faulty ones, and retain the correct. The history of war teaches, to begin with, that the frontal decision, in the case of a specially strong front, was impossible to bring about already against muzzle-loaders. See only the frontal combat of the 1st Army at Königgrätz. The same thing was repeated at Gravelotte at the Mance Ravine. The Tacticians desired that in the first case the decision should not be in the front, and in that they did well ; the 'Tacticians' desired it in the second case, and heaped mistake on mistake without success worth naming. But the result of the frontal combat of the 1st Army at Königgrätz was, nevertheless, a prodigious one, and it is precisely thus in the case of the frontal combat of

the Vth Army Corps at Wörth. The blows on both sides were frontally delivered, and most of them had effect in more or less high degree. So will it be in future too. I recall the counter-strokes of the Austrians in the wood of Maslowed, the counter-strokes of the French at Wörth, and against the Mance Ravine, and so forth. In all these cases the adversaries fought quite frontally, and yet the hostile lines were entirely overrun. On the other hand, success attended a whole number of onsets in the front by the Prussians and Germans, even that of the IIInd Army Corps on the 2nd day of Villiers, and of the Wirtembergers on the 1st day, by breaking forward from the defensive position. And with this I come to the salient point. Every good Infantry must now, as before, incessantly fall upon the enemy in front by onsets, where country supports that Infantry in any way; fire is not sufficient to wear him out; and from this arose the typical character of the fight in attack in the front at Wörth, which is marked distinctively by a surging hither and thither of the different onsets. Now who would wish to allege, however, that these onsets of the Germans had had no great result, much as was wanting therein, which must turn out better in future with greater unity in the method? Only keen onsets in combination with fire raise the intensity of the combat up to the culmination of the fitness for service on both sides. But this must in the Tactical front be ever aspired to, so that the envelopment may be able to bring on the decisive blow. To be willing to forego this, and in the front to conduct a fire fight only at long ranges, would be to restrict the spirit of attack of our Infantry, to Tactically depress this Infantry, and to lose the battle! So one should adhere firmly to frontal attacks, only more appropriately organised, with greater masses, coherently launched. Though this may bring losses, disorder, and surging hither and thither, yet they prepare the decision in high degree.

In the front the Infantry combat appears as a series of onsets; on the other hand, the leaders should seek the decision by enveloping, that is, they must carry through the attack. I distinguish, then, between onsets intended for wearing down in the Tactical front, and an attack directed to

winning the decision on the Tactical flank ; but all of them should commence only after superiority of fire is attained. For this, indeed, time has not always been left. One must under all circumstances hold fast to that point, otherwise we fall into the indecisive war of positions. Besides, if an Infantry have, like that in the front at Wörth, carried through the Tactical front combat for the whole day, as, for instance, the 50th Regiment, and still possess strength for breaking into the vital point, Froschweiler, then one should not say anything further against the principle of the necessity of the frontal combat.¹ It would be weak and feeble in such questions to make concessions to humanity. As a rule it was fresh troops, mostly closed bodies or companies, whereby the swarms were carried forward to onsets (Wörth) ; it was closed bands to which the swarms that had been overrun again attached themselves ; this indeed will not so remain. The leaders are at pains (Boguslawski), after a success or after a failure, to assemble their own men, so as to bring them forward afresh ; and this is the true keenness, because it is coupled with understanding, and leads to the high degree of resisting power and tenacity belonging to the modern fire fight. The worst we could do would be to give up something of it ; for I must repeat, The corps always fights frontally. Yet the frontal combat must be rationally conducted, and in a way adapted to the new instruments of war. If it be wished to advance by rushes already at a distance beyond 1,000 metres, then I say that we do not attain to the onsets that are successful, though bloody. The advance by rushes, combined with fire at long ranges, paralyses the spirit of attack. Hence the aim must be, according to country, to come on without pause, but with full development of front, and in opened lines, one behind another. If opportunities offer themselves for fire at distant ranges, naturally they must be turned to full advantage ; but this matter must remain entrusted to the leaders ; so, too, must the choice of formations for the advance, and decision

¹ Captain v. Boguslawski had, at the assembling in the wood at Elsasshausen, about 20 men around him, and on pressing into Froschweiler about 25 men of the 3rd, 6th, and 12th Companies of the 50th Regiment (pages 242 and 248 of the History of the 50th Regiment, by v. Boguslawski).

as to the directions by which to approach, within the brigade's area of deployment, however. As to the formations, it might follow from my expositions up to this point that one does not get clear of the difficult question simply by saying the rear troops should assume either column or line. The defender would indeed be foolish if he were not at pains to choose positions allowing full advantage to be drawn from the better firearms. In the case of such positions, tracts of country will occur in which, upon the whole, neither line nor column in close order can be maintained, when once the assailant enters the zone of medium ranges. In 1893, for instance, at the manœuvres, the XVIIth Army Corps appeared in opened lines, while as to the VIIIth, XIVth, XVth, and XVIth, closed bodies followed at about 3 to 400 metres in rear of a strong swarm line early deployed. The latter (it is a normal attack) I consider faulty.

Accordingly, the assailant's troops fight always frontally, whether they envelop or not. But if one wish to make clear to oneself the effect upon the adversary of this frontal combat conducted from front and flanks, then one does best to fall back again on Wörth. In the degree the French felt that the clasp was becoming closer and closer they tried by taking the offensive in frontal blows to make their situation easier, using both Infantry and Cavalry. The clasp was thereby sometimes bent back; but our Infantry's spirit of attack at once drew it together again. This repeated itself incessantly at Wörth, up to the end of the battle, till both enveloping wings mixed with the centre in Froschweiler. Thus, although the enveloping side fight frontally, yet nowadays, by reason of the continuously clear view, and the rifle's great range, as well as the possibility for Infantry and Artillery to co-operate knowing what they are about, the individual man has nowadays the impression that his operation is of an enveloping kind. And this is the decisive matter, because it appeals to every individual! Conversely, the side enveloped has the impression that it is seen and fired upon from two or three directions; and this must depress its moral forces at the same moment when those of the enveloping side are elevated, the means being what the latter sees and performs

(effects). For this reason envelopment must, as a form of battle, become, so to say, the normal. But to reach that the enveloping side must undertake numerous frontal onsets ; for only where these are used, in association with fire, can the envelopment be effectively executed. The new weapons, therefore, cannot do away with frontal attacks. Frontal fights remain also now, as before, necessary for the assailant and the defender. However, only by envelopment is it possible to draw from the new weapons the full effect they are capable of. And this result proceeds from collective operation, morally and materially !

From these expositions it appears, without more ado, how far I concur with the suggestions in the work, 'The Present Condition of Tactics, and Training for the Fight.'¹

¹ Keim, Berlin, 1890, E. S. Mittler.

X. OF LOCAL AND WOOD FIGHTS

ONE hears it said, Villages and farm premises as well as woods would in future play a part in the fight abundantly different from that of former times. I must be as brief as possible in regard to this interpretation, because an inquiry satisfactory in any degree would demand much space. The reader will nevertheless be able to form his own view for himself; and it will also appear whether and how far the above interpretation is founded.

It is assumed that the destructive power of modern Artillery and Infantry fire, in combination with constantly free view and the possibility of uniting the two arms in mass fire, have forbidden in future the obstinate defence of a village, or a small town, or a single farmyard. Therefore, it is taken to be better that objects of such sort should no longer be directly defended at all, but rather that they should be chiefly used as cover from view and from fire, for the reserves. It is then recommended that in front of those objects Infantry should be employed in protective trenches or other artificial and natural coverings. In this sense also the German Instructions express themselves.

Herein the question manifestly depends on things of three kinds: 1st, the position of the village; 2nd, its size; 3rd, its style of building. It has been already worked out that villages and single farmyards can no longer be found to answer as advanced posts. And so far the conditions have actually undergone important change. For instance, St. Marie-aux-Chênes and St. Hubert would no longer play in the battle such part as they did on the 18th of August, 1870; and still less a single advanced post like Wörth and Le Bourget, even if it had the extent of these places. So far, then, it might be held that the question was settled, and that

nothing remained over but to say something about villages and farm premises in the line of battle. I know very well that Wörth first got its importance when the French decided on taking the post situated in front of their position.

We have, indeed, seen that upon an Austrian shooting-ground a Jäger behind an earthwork of 140 cm. cross-section was at 200 metres so severely wounded by a Mannlicher bullet that he died; but here earthworks—rifle-pits—would then become, indeed, a preponderating element of discussion. One village is not the same as another. A French and a Polish one are, for instance, extraordinarily different. And the former, by reason of their position, style of building, and size, are still under some circumstances exactly as suitable for defence as they formerly were; certainly it was also in former times never correct when the defence was simply shifted into the place. For instance, if one desired to defend Bazeilles, the neighbouring heights also must be involved in the defence.

In future numerous villages and places will occur within the battlefield, and one will therefore have to be decided on the question whether one will defend them or not. I believe in France the answer will in many cases turn out in the affirmative, especially because, there, there are often in the neighbourhood of the villages châteaux with extensive parks, which are again enclosed by walls of a thickness up to half a metre and more. The Germans acted very wisely in giving a proper defence to the château of Montbéliard, and to that of Villiers and Goury with its park, and making them main supporting points of their position. I cannot understand why the matter should be treated differently in future. The French defended Froschweiler and St. Privat with obstinacy. The Germans could not be expelled from Beaune by firing, in spite of a ten-fold superiority, and of the fact that the attacks were repeatedly carried through almost to combat with cold steel. It was possible, indeed, so tenaciously to defend Froschweiler and St. Privat, chiefly because the Infantry defence lay greatly in protections that were in front of the villages proper. If to-day this sort of defence be specially recommended, that is nothing new; one only raises thereby to a general principle

a phenomenon which has proved itself very true. But, nevertheless, one would make a mistake if one did not make a place like St. Privat and Loigny in situation and extent into the main supporting point of the position, whether on the wing or in the centre. I have already referred to the massive style in which French villages are built; and some are found among them that even furnish a certain protection against the destroying power of Field-artillery. Hence one may not count on being able simply to lay localities of that sort in ruins, or to cause them to be entirely consumed by fire. They are too large for that. A great part of Froschweiler, St. Privat, Beaune, and Loigny was in flames; but not one of these localities was evacuated either on account of the burning, or of the hostile fire, or, finally, of the hail of stones and missiles. Froschweiler, St. Privat, and Loigny, rather, fell only by storm. The peculiar street combat in Bazeilles is left out of view, because it is not typical either for the defender or for the assailant. But one does see in St. Privat, Froschweiler, and especially in Le Bourget and Loigny, how obstinate the defender may be, even after the edge of the village had been taken possession of by the enemy. The street combat in Le Bourget and Loigny lasted, for instance, several hours, and might easily have offered time to the French for the interposition of considerable reinforcements. This point of view should, indeed, of itself suffice to prevent one from striking village fights out of Tactics.

Herein at all times much account had to be taken of the reserves outside, and of the troops fighting on the flanks, and it is quite impossible to think of a discourse on defence of a village in the main position that should omit thorough consideration of them.

I believe, therefore, that one will do well also in future to reckon with local fights, and this especially because of the smokeless powder in all cases where, as at St. Privat and Loigny, firing in tiers is possible. If it was already difficult in earlier days to see and fire upon the Infantry that were under cover in front of the place (St. Privat, Froschweiler), this will become far more difficult still in future; and from this cause, especially where wide-spreading villages are in

question, the local defence must become more practicable than it was. The combats about the ground in front, and about the edge, will naturally last longer and exhibit more tenacity in their course. We must make up our minds to that. It is attributable to the properties of the smokeless powder, when extensive surfaces are at the disposal of the defence, for firing over. I should, on account of the extensive range of Artillery fire, and its sheaf-like form, consider it even faulty to use the villages mainly as a protection for reserves and comparatively large masses of troops. For, if so drawn up, inactive troops find it hard to endure comparatively great losses, while I know scarcely any instances of good troops suffering themselves to be 'expelled by fire' from any position of defence. Rather than this, it might be recommended to draw up reserves at such points as the assailant least presumes them to be, on a basis of his expedients which the defender will as a rule know. However, I will not enter further on that matter. On the other hand, I believe that the value of separate farm premises has diminished in the same degree as they are more visible.

The main defence of villages will probably lie in the ground in front. The reserves will perhaps stand on both sides, or on one. But they can only find their employment in the way hitherto understood: for support of fire power, for counter-strokes, for preparing and maintaining entrenchments in rear, for covering the retreat. All these problems are inseparable from local fights in the battle. But if the defender possess in favourable localities means so multifarious for the defensive and offensive execution of the combat, then, because of the attractive force such objects have, exertion, too, on both sides must still, as formerly, attain in the battle its most powerful development at points of that sort. Little change will be made in this by the greater destructive power of modern fire, by the greater range, and the greater effect of the weapons. And what inward change would the new Tactics—in consequence of the new weapons—be probably able to make in the execution of the combat? But if one cannot remove objects such as villages from the position, one does better, indeed, to use them also for a thorough execution of the combat; and

just as little may the Infantry consider it impossible to hold a village victoriously, as to take it. It must be able to do both; and it is able, if it will, and if it possess Tactical capabilities therefor.

Little as one will find great positions without localities and farm premises, equally little will these occur without woods. They may (dealing only with Tactical conditions) lie within the position, in front of the position, and in rear of the position; and here again at different points. They may have a very unequal character, due to the condition of their trees, and due to the quality of the ground likewise, so that in each case their importance is as much determined by these things as by extent in breadth and depth, and configuration of the edge. For the battle, the wood may accordingly come into consideration as an object of approach for marching through, as an object of combat, and for covering the retreat, wherein its practicability for passage always has great influence.

I cannot enter in detail upon the many and important differences among woods. A French forest is administered on principles different from those that govern a German or a Russian one, in matters great and small. And hence it is needful that the officer represent correctly to himself the differences which must arise therefrom for Tactics. Every officer, therefore, must, in these domains, have good attainments, which are the foundation for Tactical training. In general one may say, French as well as Russian (Polish) forest makes greater demands on leaders and on troops than German does. And, further, the guidance of the wood fighting is substantially facilitated by smokeless powder. All woods, even the smaller ones on a dry subsoil, possess a high degree of moisture. With this the gunpowder smoke used formerly to mix, quickly producing an impenetrable stratum; it made perception difficult; and guidance of a fight, as a rule, impossible. This was one of the reasons why one willingly avoided woods. To-day smoke is abolished, and the young officer has no longer any notion of the difficulties of former times. In fact, a wood fight is to-day capable of guidance, unless other causes become obstructive, although

the report of firearms, and the words of command, with their echoes, make themselves very perceptible even now in wood; only in woods of smaller extent, however. The difficulty of guidance increases with the extent; and in the case of large woods it is to-day, too, only practicable in any degree at specially important points. Hence, irrespective of the consideration that Artillery and Cavalry cannot be employed on this area, large woods are attended by great disadvantages; for they still often make supervision also difficult for the generals in command, and for the higher authorities. In consequence of the greater penetrating power of Infantry projectiles, trees can only in rare cases still afford cover; the great dispersion of Artillery projectiles also takes away from the wood the property of cover against Artillery fire; and besides in future fir-woods especially will be much easier consumed by fire. In the defence, the pith of the matter lies in maintaining the edge of the wood; if this be lost, assailant and defender are pretty well in the same condition, and it is only at clear sections¹ that the defender again gains the advantage (wood of Maslowed, 3rd of July, 1866). Farm premises also may give substantial support for a fresh resistance, as is strikingly proved by the fight of Ladon (24th of November, 1870). As a rule, woods are bad points for the wings to rest on, and are most advantageous when they are moderately extensive and are situated in the front. So, for instance, the small pine grove of Colombey (14th of August, 1870; Bois de Tronville, 16th of August, 1870).

According to these general remarks, the part played by woods must become somewhat specialised, because they can hardly in future be quite avoided on the battlefield. Wherein again it must, however, be kept steadily in mind that in future it will be still more difficult to ascertain the strength of the defender; that the defender can much delude the assailant by an appropriate apportionment of his fire; and the assailant must in future first always fight, that he may be able to see, and then to make his chief dispositions.

As woods to march through there come into consideration,

¹ [Or, clear (or open) retrenchments. The words are '*an lichten Abschnitten*.'
—TRANSLATOR].

for example, the wood of Popowitz (3rd of July, 1866), the wood of Maslowed (Swiepwald) at the same place, the Bois de Vaux on the 18th of August, 1870, the wood of Beaumont, 30th of August, 1870. Of these a model use was made, in the first and last cases, by the 28th Brigade and the IVth and XIIth Army Corps respectively; and to that the later successes also are owing. Lessons:—Upon adequate reconnaissance and a correct idea of the case there are based an unobserved entry, a quiet passage in close order, and after an arrangement, a simultaneous deployment on the further edge of the wood, when reached, so as to fight from as many points as possible. In the second case, the Swiepwald assumed at once the character of a comparatively extensive wood fight; it became an advanced post, and the advanced post became the main position: 2 Austrian army corps in the end fought here against a Prussian division, deviated from the prescribed main position, and thereby made possible the relatively easy victory in the main position. In this wood battle defender and assailant had great losses; also both lost direction, especially the Prussians, so that of them a part quite turned their backs to the main line of direction. This loss of the direction more easily occurs in woods, especially in large ones, where there is fighting, than in villages. Hence it everywhere repeats itself in greater or less degree. By practice the harm can be obviated somewhat; but it may here be said at once, that it is never quite to be removed. In the third case, the wood to march through formed indeed an inconvenient means, but still a means, for advance and forming up under cover, and for deployment; yet all the plans relative thereto miscarried from deficient experience in the leaders and in the corps, and from deficient coherence in the designs. One condition alone was here capable of fulfilment: rallying the repulsed troops, only without timely reassembling and getting them into order. The many lessons have foundation already in this sketch. All four examples are typical for the future in a high degree, as regards success and failure of what is contemplated.

A variation in the part played by the wood is met with in the Niederwald and Langensulzbacherwald (Wörth, 6th of August),

and in the Stiringwald (Spicheren, 6th of August), in so far that the passage became impossible without fighting ; consequently still higher demands on leaders and troops made their appearance. All three woods were not favourable to flank protection for the defence. The 2nd Bavarian Corps certainly, from various influencing causes, did not attain the full advantage wished to be drawn from the Langensulzbach wood ; the XIth Corps overcame all difficulties of the Niederwald ; of the 27th Brigade (Stiring), out of five battalions, only that led by General v. Woyna himself reached that point of the Stiring-Wendelwald where he wished it to be.

Hence for passing a wood district, in action, one must attend all the more to the points of view of order, quiet, preservation of the direction and connection, splitting up into several columns ; but also practice it industriously in peace.¹

In the execution of the combat in the main position an important rôle was played, besides the pine grove of Colombey (14th of August, 1870), already cited, by the park of Goury (2nd of December, 1870) with the wood, the Bois de Tronville (16th of August, 1870), that of Génivaux (18th of August, 1870), and above all by the group of woods of Poupry (2nd of December, 1870). The phenomena here are of very different kinds. But they have several points of contact. This especially as regards tenacity of the combat about the edge of the wood ; loss of the direction during the combat (Génivaux and Poupry) ; mixing of the troops ; and impossibility, in the greater situations (Poupry), of exercising guidance over the mixed up troops. The latter instance, where the wood consisted of several irregular groups separated from each other, is one of the wood fights most instructive for the future, inasmuch as the combat was carried on partly in twilight ; and especially because the possession of the ground was determined by the design of the decisive French attack. This was correctly brought against the northern apex (Tactical point), because the frontal blow promised no success. Here also occurs the case of Cavalry under General v. Colomb having, at one of the gaps, made a successful charge.

¹ For avoiding repetitions let the reader be referred to '*Die Kämpfe um die Steinbrücke von Rozérieulles*' and '*Vierundwanzig Stunden Moltke'scher Strategie*.' Berlin, Felix-Militärverlag. Both by Fritz Hoenig.

Further, we see adroit use made of woods for protecting the retreat: by the Saxons (wood at Briz, 3rd of July, 1866); by the French (Reichshofen, 6th of August, 1870); and again by the French (wood of Jaumont, 18th of August, 1870). And, finally,

There comes into consideration the operative and Tactical side of great forest districts; with the phenomena they exhibit as to concealing the forming up, as to marching through, as to the battle, and as to covering the retreat. Typical examples are the forests of Orléans and Marchénoir.

In situations great and small one must, regardlessly, attend in every wood to the simple laws of order, of keeping the direction, and of guidance; unless after a short time all is to become problematical. Especially, the passage of the wood must be done with painstaking precision, while an organised system is used of sending forward in order to maintain the direction and get information. If it be possible to take the edge, immediately after its capture the mass of assailants must be again assembled to follow the skirmishers, and now from the wings to envelop the district of the wood. The different influential parts which woods have played in former times will in future rather increase than diminish in importance; hence it is as stimulating as it is useful to think carefully over each individual case, while translating it into terms of the effect of modern weapons. In general, also, military history teaches that woods, as well as localities, only reach their highest importance through the quality of the troops; this comes especially to light in the case of woods. So the forest of Orléans contributed substantially to the Tactical defeat of the French, while the Germans remained masters of the situation, which was one exhibiting much diversity and was by no means free from danger. They succeeded in spite of the fact that they also, throughout a long space of time, were unable to attain the desired degree of connection in the fight. Under these circumstances the combat assumed in certain degree the shape of fights on the march. But these in future will, under similar conditions, certainly be conducted with far more obstinacy; for in such cases wood fights must become then approximately defile fights.

In local and wood fights the general guidance of the fight is made difficult; they engender uncertainty, and easily lead to precipitate adjustments and faulty movements.

The leading of the troops in detail is difficult; the connections are easily relaxed. Hence local and wood fights exhibit so many dispersed troops. The delivery of fire remains restricted to short distances. Since the troops once extended in the wood fight are mostly withdrawn from the influence of the leaders, the appropriate employment of the reserves gains in importance.

XI. OF FIGHTS BY NIGHT

THE philosophy that has arisen concerning losses, the half whereof were probably avoidable with rational leadership, even if using the formations employed in 1870 against the Imperial army, this philosophy has also been the occasioning cause for a part of the 'Tacticians' to desire removing into the darkness of night that whereof they no longer believe themselves capable in daylight. And as happens in all things that require knowledge, experiences, and reflection, so the mass, which neither possesses the one nor loves the other, has concurred with these false prophets. If the thing be impracticable in one way, it is practicable in another; the problem is then easily done. But if I must blame and reject only in its consequences and forms the disposition represented by the 'Midsummer Night's Dream,' as the diseased outgrowth of a healthy thought, the disposition of the 'night Tacticians' deserves the severest condemnation, as the expression of a thought already diseased. I purposely do not say Night, but Darkness of Night, for there are nights which are not dark; but now these 'Tacticians' precisely desire the darkness only because they choose to find therein protection against being seen and being hit.

If one will not put Tactics upon a false ground one must ever start from the human being; and the infirmities of the human being can best be recognised by a serious man through honest inquiry as to his nature. He who will undertake this in his own case will easily be able to ascertain that in darkness his action, in everything he does, is more insecure, and consequently less decided and less effective, than in daylight. Every human work conscious of its aim, and practical, requires the power of seeing; otherwise the Creator had given us no eyes. It is only by using them that a super-

intendence is exercised over the activity of the other senses, and we are made capable of using these to full advantage. He who desires that must wish for light; he who chooses darkness foregoes one of the decisive means of action. Every transaction in Tactics depends on movement; every movement, however, of the individual human being, even the simplest thing that is necessary for the fight, namely, walking, is in darkness insecure. Every appearance perceptible to the senses has in darkness an effect at first surprising and alarming, as everyone will concede who remembers how often in the night anything has caused him 'throbbing of the heart.' I could cite of myself hundreds of such cases. And the terrible phantom yields only with the return of the intellectual faculties. That is commonly called presence of mind, which is not quite correct; for the 'presence' of the mind is only the consequence, dependent on time and circumstances, of the phenomenon. The phantom does not always, however, yield forthwith. That is, if the human being, by using his powers of understanding, be in a condition to make up his mind at once as to all causes of the startled feeling, he is also, when the will-power is present, master of the situation; but this 'orienting by the understanding' assumes known conditions, above all a known neighbourhood. If this be not the case the powers of the understanding do not so quickly attain to victory over the imagination as is desirable; and the latter, according to experience, assumes such power, in unknown conditions and in darkness, that, producing one illusion after another, it holds the understanding entirely bound. The human being has then lost the equilibrium of his senses and powers. He remains but a creature misled by an excited imagination to the greatest follies, hurries, and so forth, in consequence of misconception, and in Tactics that forms the best soil for a panic. These simple truths have kept all commanders of importance from undertakings at night, by which are naturally meant great and decisive ones. And there is only one commander, namely Cromwell, who acted otherwise, nevertheless under circumstances which justify this. There is, 1st, the decisive battle of Dunbar, on the 8rd of September, 1650. Cromwell

precisely knew the country and the disposal of the hostile troops. He used darkness for the advance, twilight for the deployment, and light for fighting and pursuing. However, the advance amounted at most to two kilometres; his forces numbered 12,000 men; roads, crossings, direction, all was known. His second example is the crossing of the Firth of Forth. Yet here also the preparations, down to the smallest thing, were made with astonishing care, and here for the crossing (advance) a real darkness did not prevail, but the night was starlight.

If all commanders have avoided the dark night as a time of conflict for the decision, that is attributable to the fact that they were judges of human hearts. And without this no commander is conceivable. It is, withal, incomprehensible how 'Tacticians' who hold all closed formations as impossible for the combat by day recommend the combat by night. Because they think they are not able to sufficiently control the troops in swarms, they choose night, so that in it they may be able to employ the closed formations and to act with conscious object. However, one does not know what one should think of the understanding when the same men wish to transfer the combat to dark night, which makes the above activities and objects difficult or quite impossible; for mutual sight and recognition are necessary to all that. But in darkness the man cannot see his leader, cannot follow his example, can at the most distinguish his voice. If the night be bright it does not protect from fire; and this protection, indeed, is wished by the 'Tacticians of darkness.' This protection is like stilts to their theory. The fine engagement of Laon (9th of March, 1814) certainly took place in the night also, under conditions similar to those at Dunbar, at least as regards familiarity with the country. The night, however, was not dark, but so illuminated by a starlight sky and the burning village of Athis that they had pretty trustworthy fixed points for movement. For the rest, effective fights at night require surprise, and so are always closely connected with the idea of a sudden attack. From all this it follows that: 1st. Fights by night may be really effective under some circumstances, when the discipline of the troops makes

such an undertaking appear practicable, when one has before one a prospect of surprise, when country and adversary are known, so that the troops do not miss their objects and the problem is a simple one; 2nd. That the strength of the troops finds its limit in the possibility of a coherent forward movement. If one wish to surprise, one must get forward quietly, without firing, and quickly; in the formation for the fight, one must march and fall in with the enemy, for forming up takes too much time and diminishes the prospect of surprise. But only relatively small bodies can be moved quickly and in a way to effect surprise; only relatively short stretches can be used for the advance; and so soon as, for that, one relegates the troops to different directions, one brings the exact adjustment of the problem into question, as for example at Chenebier. 3rd. For the advance an army requires many roads. It cannot move by night in formation for the fight, cannot in the dark traverse long stretches; the army corps cannot make arrangements among themselves, in short they cannot be under guidance. Consequently, also, a decisive battle will not be fought in the night. Keep in view the 17th and 18th of August, 1870, before Gravelotte. It would then have been easily possible to obtain complete certainty concerning the country for the advance, and to start the troops in the right direction of march; nor did the lines of march present any special difficulties. Now think of the difficulties which the forward movement of the two armies nevertheless brought on; of the march of the Saxons and the Xth Corps in formation for the fight; and imagine that in future this problem should be solved in the night by 8-9 army corps. I believe other things would come to pass than in this case existed by day! Therefore, now as before, day will be required for the decision; fights at night will remain exceptions. Battles at night are quite out of the question. And, with that, fights at night continue in the domain of the small war, and of the war of positions, where they always have been.

The fine night fight of Podol, on the 27th of June, 1866, might in similar circumstances be repeated again and again; and one must even train leaders and men to that end. But

the condition of things was simple. An assault on a bridge, and maintenance of the bridge when won, against attacks in open country, are the simplest Tactical problems, whose solution in so bright a June night as that one was requires only resolution and discipline. But when matters become more complicated, as they did shortly after at Gitschin on the 29th of June, then also the drawbacks of the night fight show themselves at once, even after a victory and with a relatively small force of troops.

If the question be as to the movement of army corps, distinction must be made between the advance on the roads and the forming up, in the country, as well as the continuation of the latter up to the assault on the enemy. The march of different army corps in the night on good roads, as in France, with troops that have marched in, has no difficulties that could not be overcome; and leading and combination may then quite well subsist and be maintained. I have experienced night marches in hot summer and cold winter. In the first, a very great one, from 1 o'clock in the day till 3 o'clock at night the troops who had not yet marched in arrived at the objective of the march certainly in a scattered state (4th–5th of August, 1870). In the 2nd and 3rd, from the 10th–13th of August, 1870, in brigade combination, the march succeeded (through day and night) just as well as by day. Night marches from Blois to La Chapelle (31st of December), thence to Vendôme (1st of January), and from Château-Renault to Blois (15th of January), were performed like play, although the latter passed through very snow-blown districts. If the night be starlight, and to that there be still added snowy fields, night marches have but the disadvantage that the men lose their sleep. But the difficulties begin for large bodies only from the forming up. This one would have to carry out at 5–6,000 metres at least from the enemy, if one desired to remain as much as possible undiscovered; and in face of a watchful adversary that might be still too near. Such distances, however, it might be, in unknown country, impossible for several army corps to traverse in formation for the fight without coming into confusion; and consequently night-battles cease, of themselves, to be.

Hitherto the question has been only of night combats which were begun in darkness and were carried to conclusion or broken off, in which the advance ensued in the evening or at night. There are other fights wherein the advance was carried out by day, which were introduced and executed by day, only decided, on the other hand, in darkness or twilight. To these belong, above all, the 3rd and 4th of December, 1870, before Orléans, then La Tuilérie, and a whole number of other cases also from the battles before Le Mans, of comparatively small importance in Tactics and Strategy; and herewith I come to the point which I consider very weighty. Nocturnal undertakings may, of themselves, come upon every arm; and already on this ground they must be practised, so that at least the leaders gain an idea of their difficulty. But it is, besides, to be expected that the action of many fights, and even battles (Gravelotte, Orléans, Le Mans, Beaune, Loigny, St. Quentin), will be carried over from day into late evening, therefore into darkness; and in this Tactics of understanding and effective troops might find a field of success. If, for example, the IIIrd and Xth Army Corps had been launched to storm Amanvilliers after the clearing of St. Privat, these would probably have won considerable successes. If General v. Goeben had but been supported at all by his Cavalry, or if he had had fresh Infantry on the evening of the 19th of January, 1871, the retreat of the enemy would have ended in complete dispersal. Some companies energetically led decided the battle of Le Mans by the storming of La Tuilérie, about which since midday battalions had vainly strained every nerve. Single companies and diminutive battalions stormed daily the hostile points of support before Le Mans, while darkness was falling; and all this took place with small losses. Still more could also have been attained with relatively small losses. For such problems there must be at hand an effective discipline and an effective corps of officers. And it is to be well considered that the several happy issues of these undertakings fell to the end of the war, after the troops had naturally lost much of their freshness and effectiveness. So, not only at the end of the fight, but at the end of the war, there were by resolute columns in the evening decisions brought about which by day

could not be won with swarms. One has no right to call these decisions 'fights by night.' Also, the situation was known possibly in its outlines by means of snow, starlight sky, and fire flashing up, and the fight that had preceded. One ought not to cling to names, but be at trouble to recognise the substance; and in that matter the moral energy of the corps comes then again fully to its validity as decisive *motiv*. It cannot fail that improved weapons make the attack by day more difficult; but it also cannot fail that the power of the defender is, in the evening, for the most part broken by the exhausting combat of the day, even if he be still in his position. Naturally, this is then the moment to launch troops in close order, protected by the twilight or darkness, against the broken fighting force on the adversary's side. And under such conditions of the fight it must and may reasonably be required from these troops that they take the place by storm. Here the assault march is well in place; and a resolutely executed blow will, already from reasons of *morale*, as a rule have success. If it be wished to call these things 'fights by night,' well and good, I do not cling to the phrase; but I am firmly convinced that they are here in place, because they are based on the nature of man in Tactics. Only you must take care that for such cases there are at a decisive spot fresh troops close at hand in the evening, that these have hearts within them, and that the leaders possess the keenness that is necessary for such tasks. Accordingly, it would be possible that battles should be decided in the night, after remaining undecided by day; at any rate, evidence for this is furnished by Gravelotte, Le Mans, Loigny, St. Quentin, and even Villersexel, through what was done and what was not done. So at our destination I and my opponents meet, whereas our roads deviate from each other. Who is right the future will show; and if the best cannot be reached, one must content oneself with the good. The decisions by night which I have recommended have a heavy drawback; as a rule they forbid, indeed, a pursuit; at least such a thing is not known to me, apart from Waterloo. That is certainly bad; but those recommended by the other side have a still greater drawback, namely this, that in darkness great masses cannot be guided with the

requisite certainty. In the former case the decision at least would be reached; in the latter one would not get to that point at all.

In the Russian Army, General Kuropatkin belongs to the defenders of nocturnal attacks. But he has drawn his arguments chiefly from the Tekke campaign,¹ which must not be transferred to European armies. Nevertheless, the reference to moral force, which Kuropatkin and Dragomirow emphasise so much, must not be undervalued. The soldier who has no other knowledge than 'to conquer or die' is, for all that, in general a fiction, but were this not the case night combats would still not be stripped of their dangers for the higher leadership.

In the French Army also night battles have lately been given up, which Boulanger specially recommended in time past. In 1891, the manoeuvres at Châlons s. M. ended, as is well known, with a mass attack in the morning twilight; but in war an army might probably not succeed during the night in assembling as requisite.

Of the older French generals, Marshal Pelissier especially, who at last stormed Sebastopol, was an enemy of nocturnal undertakings. He emphasised that the main reason why his first assault (on the 18th of June, 1855) failed consisted in the attack having been arranged for night. That experienced soldier was of opinion, besides, that at night one would have to deal with sleepy men, that many would remain lying, and would crawl away, and that disorder would not be avoidable. But if a general of the French Army of that time judged thus, what have we to expect of modern troops, who can raise no claim to the name of old soldiers?

Of the Americans, General Early, on the occasion of the death of General Jackson, who, as is well known, was mortally wounded in the night fight at Wilderness by his own men, and then died, has expressed himself as follows concerning fights by night:

'The fire which was delivered at Jackson's staff, deplorable as it was in its results, was simply the consequence of an accident, or rather of the confusion unavoidable in all cases

¹ [The German phrase is '*aus dem Tekinsen-Feldzuge*.'—TRANSLATOR.]

wherein one is compelled to manœuvre with troops in the dark. I, who have been perhaps as often under fire as any man of the present time, am come by experience and observation to the conclusion that offensive movements in the night, especially at their commencement, when the opposite side is attentive, do more mischief through errors and chance movements among one's own troops than among the enemy; also, I believe that all experienced leaders will share this view. The danger is still further increased when, in addition, the movements take place in thick wood ' (Wilderness).

As is well known, no investigation was ever made from what troops General Jackson received his mortal wounds; and the battle at the Wilderness was won when General Jackson proposed to replace Rhodes' Division by that of A. P. Hill, so as still to pursue the enemy. Even under such conditions, therefore, undertakings by night are not to be recommended.

XII. CONCLUSION

WHEN the needle-gun was introduced, people generally held the view that with this rifle, by reason of its greater rapidity of fire, and so forth, that could be done with a section of skirmishers which had needed a *Zug* up to that time. Though, on the other hand, one launched three or four times the number of combatants, it was thought the combat would be so much the quicker decided. Albeit the latter was verified in several cases in 1866, the wars of 1870-71 and of 1877-78 showed that, in case both adversaries carried breechloaders, the decision did not come about quicker than in earlier battles, but that, on the contrary, the combat had become more tenacious, and that the fighting-power of the swarms with breechloaders was extraordinary, and unexpectedly great. If among the great examples proofs for this be sought after, there are probably no finer ones than those of the Vth Army Corps at Wörth and of the IIIrd at Vionville, despite sundry changes in the condition of the fight.

Now, notwithstanding that smokeless powder always makes it possible to see, and the performances of rifle and cannon are at the same time considerably enhanced since 1870-71, it would still be precipitate to conclude thence that, as a rule, a quicker progress and a quicker decision would of necessity appear. For those who have occupied themselves more closely with the operations, as far as the battlefield, it might already result therefrom that one cannot count upon an absolute shortening of the great combats. Masses of 8-9 army corps are not done away with in few hours. Moreover, it is doubtless that the way of fighting in swarms confers on the man more fighting-power than any other. On the other hand, it might be pretty certain that the superiority in

fire of one side over the other can be attained in many cases quicker in future than hitherto. This might especially depend on which of the two Artilleries has first crushed that of the adversary; and, that this may be expected very quickly where there is superiority in training and leading seems to me no longer open to any doubt. It might, then, happen in future that soon after the opening of the battle whole batteries became incapable of fighting; and this in much higher degree than the foretaste thereof we already received at Verneville (IXth) and St. Hubert (VIIth Army Corps). And it is not too much of an assertion if one say that on the 18th of August, in the condition affairs were at one time, the whole Artillery of the 18th Division must simply have been captured by the French Infantry on both flanks in the first hour of the battle. On the other hand, up to the interposition of the corps on the wing at Wörth, the mass of Artillery of the Vth Army Corps was the rock on which the waves of combat broke again and again, and the point of support for the Infantry of this side. These two examples are quite typical in the negative and positive senses, for superiority in fire and for progress of the combat; and hence Artillery in masses must be launched from the beginning, covered in front and on the wings by Infantry thrown forward. So can superiority of fire be reached more and more from stage to stage; and when this is gained, then one might read of whole series of guns unfit for fight, which must fall into the hands of the conqueror if the progress of the combat be favourable. This the more as the concentration of fire of the Artillery upon one mark is now fully possible.

Superiority of fire, however, may not coincide in time with the decision. The latter in general is only possible of attainment after the former; and it depends on the fighting-power of the side superior in fire whether it be adequate for the decision. The French had, without any doubt, the superiority in fire along the whole line of battle of Gravelotte, till perhaps towards 4 o'clock in the afternoon, but nevertheless they nowhere gained decisive advantages. But it is more difficult also than one believes to establish superiority of fire. This appears from the behaviour of the left wing of the

French at Gravelotte. Artillery which is silent during some time need not be unfit for fighting, but it may be withdrawn for the decision. Hence it follows that in the actual or supposed fire superiority one may not always without more ado descry also the decision. This demands, rather, a general forward movement against the decisive points; and only Infantry can, as a rule, perform this: the XIIth and Guard Corps at St. Privat, the 89rd Brigade at Loigny, and so on. Hence the new weapons do not alter the *rôle* and mission of Infantry and Artillery. The one cannot solve the problem of the other; but, as species of fighting troops, the community of the two is invigorated by the disappearing of smoke, and so on. Not till now are all preliminary conditions present for battle Tactics.

As of Artillery, so also of Infantry from the beginning started and guided with conscious aim and with correctness, there must be thrown into the fight relatively strong bodies in order to reach superiority of fire as early as possible through common exertions with the Artillery. But this is for both arms only attainable after careful previous reconnaissances, and where there is a coherent method. Hence all commanders, down to the commander of the regiment, must always be on quick horses, far in advance, in order to see, and to bring the troops at the requisite long distances into the correct direction of the fight. If Artillery and Infantry come from the first in strength upon the scene, one may with calmness look forward to the further course of the fight, and to the questions of employment of the bodies that have arrived and are put together. I must here again refer to Probus and St. Privat as examples of Tactical correctness and incorrectness. And that has all been subject to no change in principle, but only to a change in regard to the distances, starting from which the preparatory measures must be taken. These will therefore demand more time than before. But whether it be correct, as some Tacticians conclude, that after the preparations are made the combat proper would have a quicker course, that deduction I should not like to draw off-hand. For it is contradicted by the indubitable increase of the individual man's fighting-power through the far better rifle, the

more abundant ammunition, and more careful training. Anything of that kind, too, one should not wish to settle in advance, because it will not do, and it leads to wrong conclusions and conceptions. In Tactics you must always hold to actuality ; it offers lessons sufficient for study.

To correctly start troops, however, and launch them is possible only through intelligent use of applicable formations in the country. For this there is nothing else than an organisation on the method of the Lines, out of which can be also most simply developed the combat by masses of skirmishers for the execution of the combat. I again refer to Probus and St. Privat (north), to Froschweiler, Loigny, and St. Quentin. Above all, the Lines are indispensable for the forming up. Hence closed formations are not to be banished from the battlefield ; they are only to be rationally used.

Now, since Artillery and Infantry coming from the outset in force upon the scene afford the best guarantee for gaining superiority of fire, such an employment of them is a Tactical law. But if the assailant, for instance, have reached superiority of fire, then the danger diminishes for bodies in close order that are intelligently led ; they may then in many cases be capable of employment still, and I repeat that then some companies or small battalions, in close order, may bring the decision most quickly : Froschweiler, Loigny, La Tuil rie. This is not made impossible by the small-bore rifle, and so on ; for if the adversary's fire power be once broken, the better weapon is no longer much use to him. So, always rational and cool, retain and use what is good, and avoid obstinate fanaticism for principles.

Just so is it with distant and close-range fire. The danger of exhausting the ammunition seems certainly much diminished by the greater amount of ammunition carried ; but it is at the same time increased again by the magazine system, and the great range of the rifle. At Loigny 3 battalions of the Fourth Bavarian Brigade exhausted their supply of ammunition, and on the same day the 1st Bavarian Division had at midday, therefore after a 4-5 hours' fight, so far exhausted its supply that General v. d. Tann was obliged to have it furnished with ammunition before it could again go

into the fight. Under conditions like those here and at Beaune, where the 16th and 57th also had repeatedly to replace their ammunition, that is, on the whole in the defence, the bringing up of fresh ammunition should be practicable also in future; but the danger of exhausting one's ammunition is now, as before, in every offensive fight of comparative length, present in high degree, and the difficulty likewise, perhaps the impossibility, of replacing ammunition. Both will be most surely obviated by economy of fire, and opening fire as late as possible. Several fighting-situations at Wörth, in which troops of the Vth and XIth Army Corps were near exhausting their ammunition, are, unless in such situations a palpable renewal can be thought of, a pressing reminder to open fire late. Also, I do not much esteem the means used in peace for fresh supply of ammunition in the attack. On intelligible grounds I do not acquiesce therein; it remains a chief point of view to furnish to the man before entering upon the engagement as much ammunition as he can carry without losing the power of lively movement. In the fight, however, the ammunition must on principle be taken from the dead and wounded.

If Infantry can inflict sensible losses upon the adversary at long range (1,000 and beyond 1,000 metres, by fire that is under direction), it would be folly if it did not do so. Mistakes and imprudences are always committed, and of these every corps must at once take full benefit; it must be regularly educated to that. Now fire and movement are incapable ever of being so united as if one had armies of automata. Fire and movement are, according to their nature, contraries; one may mitigate them, not entirely remove them; and, in general, weak human nature strongly tends to find in fire a welcome pretext for the halt. No one can contest that. Thereby two disadvantages arise: 1st. The impetus of the attack sustains losses; 2nd. Fire ensues at less effective ranges and favours wastefulness of ammunition. Therefore every Tactician will as a rule endeavour to open fire first at medium ranges, because from the point of view of leadership the further circumstance comes in that troops not firing are easier to direct than those firing.

Notwithstanding that the aspiration after leadership and guidance may be taken as presupposed, the object of the endeavours is not always attained. Fire compels loose order; through loose order the colours come into great dangers. Think of those of the 16th and 57th. And hence the colours must on principle remain out of the fight. If another method be followed, then, besides the line of Artillery unfit for fight, a whole number of colours might be met with, of which one would hardly know how they were lost. The description of the loss of the colour of the 16th is certainly not calculated to support this deduction; and I am an enemy of all legends, however fine they sound, because they hinder the recognition of actual events and the obtaining of lessons from them. The 16th have, in fact, lost the colour of the 2nd Battalion, and let him who will see it go to the Dome of the Invalides in Paris. Only after the attack, at the assembly, the colour was missed, which probably at the attack had been broken about the middle by one shot or several. Now when the French reached the point where this colour lay, they took the upper part, the colour proper, back with them; the lower remained lying, and was found on the 17th of August by the 16th, as the French at this point soon gave way in consequence of Rheinbaben's Cavalry Division coming upon the scene. This is the simple way it happened, and herein there can be nothing reflecting shame upon the corps. But, nevertheless, a loss of a colour is very easily regarded as a disgrace, and the taking of such always as an honour. On these grounds the real circumstances, prettily trimmed by the 16th, have been quite transformed into an offensive lie by the French. I am not disposed to go more into detail about it. But I am curious as to how long a legend can maintain itself in print whereof every experienced warrior has the feeling that it is very prettily 'decorated,' and concerning which I possess the proof. The French 57th Regiment, which stood in face of the 2nd Battalion of the 16th Regiment, published in 1885, in the 'Petit Journal,' the allegation that the colour was by it 'taken in full action.' As to this, I have already set the matter right in the 'Deutsche Heereszeitung,' because French technical newspapers of estimation,

as the 'Avenir Militaire' and 'Progrès Militaire,' also maintained that the colour of the 16th had been captured. That is not true; it was found.

It may not be overlooked that the Tactics of envelopment are more theory than reality. In great battles, only the wings can bring about an effective envelopment; and even herein it is to be considered that, as soon as the adversary prolongs his line in face of the envelopment, which he will indeed probably do, then the soldier again fights frontally, and only the leaders by way of envelopment. On the other hand, the soldiers, fighting frontally in the envelopment, must, in consequence of the great range of small-bore rifles, produce a palpable effect behind the defender's front, because the Tactical envelopment permits *eo ipso* the quickest attainment of fire superiority, since by fire from two fronts situated at an angle with one another the concentration of fire is, so to speak, first possible, in a theoretic-ideal sense; and the absence of smoke again favours the concentration of fire on the object from both fronts, and by the Infantry and Artillery. Hence one must ever strive for envelopment—but with all three arms—as the most effective form of attack. Only the performance of it might be very various.

This Tactical law may not entice us to treat lightly the combat in the front. And that seems to be somewhat the case. The front must be now, as before, not only busied, but energetically belaboured; and it would be wrong here to be willing to forego making full use of the fire power and attacking power of Infantry and Artillery. Consider what both arms performed in front at Wörth, Vionville and Loigny. Let there be no delicacy in the interpretations. War demands sacrifices, every decision demands blood. And in that the troops in front will have to take great share now as before, for otherwise the adversary will also now overrun the weak front, which in the presence of mistakes and infirmities is to-day just as possible as it was in the times of Napoleon I. But one like him is not always there. Keep, therefore, within moderate bounds as regards envelopment. Such a thing with a front of inadequate strength is a mistake. Figures and numbers for it cannot be given; the

numerical conditions by themselves do not make a front either strong or weak, but the way in which the figures are used in the front. In every case adhere we to this: that the knowledge of the soldier may be no other than that he must be the first in the attack and the last in the defence. And also in future the valiant hearts and open minds which know how to use the better weapons will decide the battles. The latter may well be overcome by the former, the former not by the latter! It remains even the best thing when valiant hearts and open minds have at the same time the best weapons at their disposal, but rarely will all advantages be on one side.

With disciplined troops of moral force, and in the hands of good leaders, the decisive blow, which from many causes is unable by day to bring any success, keeps its Tactical value, also where the small-bore rifle is used, towards evening, in twilight and darkness, to say nothing at all of thick and murky days. In 1871, in the combats before Le Mans, all points were simply stormed with Hurrah! and drums beating as twilight fell, and among dozens of examples of similar success I know but one of failure. So for this, too, let close order formations be preserved, for only with such can that be done.

On the whole, the fire fight in future might take place chiefly between 600 and 800 metres, and attain its culmination between 400 and 800. Exceptions will naturally occur. The knowledge of the ballistic properties of the small-bore rifle must set the limit for the leaders, up to which in each individual case they may urge forward their swarms. If this knowledge be not present there might be many useless sacrifices.

It is idle to dispute on the question whether the Infantry or Artillery have more advantage from the smokeless powder. As I understand the subject, the two have, through the discovery, extraordinarily increased in Tactical value, both at expense of the Cavalry. And much as I have advocated the view that this arm should not disappear from the battlefield, in the same degree do I hold it difficult now to employ it there with success. But if the hostile army be broken

morally and physically by the exhausting fire combat, then the Cavalry may to-day, with adroit leadership, be already in the heart of the adversary's position before he have recovered again. Besides, great Cavalry combats must precede the battles, for the adverse Cavalry must be beaten before one can see and reconnoitre and take the last measures. I should think that would be a task so great and honourable that the Cavalry might well be content therewith. At all events, in small or great bodies, the Cavalry will have proper fighting to do, consequently it also remains an arm for battle. For as regards the effect, it is indifferent whether the Cavalry make its appearance at the beginning and end, or between them. But what lies in the nature of the Cavalry the other arms can never take away from it.

I have already repeatedly said that Gravelotte seems to be, perhaps, the battle type of the future; yet I hold the view that where there is greater strength, natural and artificial, the decision may not fall till the 2nd day, perhaps even later. Probably we shall again get to battles of circumvallation; Belgrade, Mantua, Plevna may repeat themselves, whether in much likeness or comparatively little. For the case is indeed conceivable of the assailant winning no victorious battle at all, encompassing the defender with circumvallation where he finds him, of several relief battles, and so forth, then arising, till the encompassed falls through hunger and exhaustion.

I believe also that a Moltke offensive will hardly return. Everything points to the character of tenacity at the frontiers, and the continuation of the resistance on a large scale in great defensible positions in rear. The course of the war would therefore take form by fits and starts. Positions will be long contested; they will cost much blood and other sacrifices, and that side will conquer which develops the greatest tenacity, and by dint of good establishment as regards the base, &c., is able to attain a continuing superiority—in that success certainly realising a complete collapse of the adversary's material and moral forces. Hence it follows that greater undertakings will be directed against the vital arteries of the army. With each successive destruction the war will

move by fits and starts from one halting-place to another, struggling or labouring further ; and the individual periods may under some circumstances become really long. Metz, Paris, Belfort, Plevna, Shipka, support this.

Now, although no new principles are brought into Tactics by smokeless powder, yet it alters in high degree those that have obtained hitherto ; and it also hits warfare at the place where Strategy and Tactics run over one into the other. If smoke disappear, naturally one can see as far as is at all possible. Therefore the defender, or both sides, can carry their observation beyond the fighting-line to the advance also, and the forming up. This is telling, especially in prepared positions ; and one may not believe that it can always be precluded by skilful use of the topographical conditions, for one must take the district of operations as it is. There will be possible unobserved advance and forming up, but there will also be other cases where they are not possible, and then difficulties must spring therefrom for the assailant, which ought not to be under-estimated. Again, when the weather is not quite clear (mist, rain) the view pretty well ceases to be open ; but in our climatic conditions murky days are no rarity, especially in autumn, spring, and winter. Of what use would the new powder have been to the Prussians at Jena, to the Austrians at Königgrätz, to the French at Sedan, and to the latter in most of the battles and fights of the winter ? But also under conditions like those of Kissingen both sides could from the small-bore rifles have had little advantage ; that is, country can do away with all advantages. So topography and weather put a proper curb indeed on theory.

Another point which is Tactically of importance consists in the colours of the uniforms. If the Cavalry is to be as little observable as possible, then all bright colours must vanish from its clothing in uniform, especially red and white. But also, in the case of the Infantry, the bright fittings of the helmets must be done away with, and all metal parts, especially of the rifle, must be kept dull. I have observed at the exercises in peace that the hostile Infantry, which was lying between 8 and 400 metres, and could not be found, disclosed itself merely by the helmets, and the movements

which the loading and firing of the rifle demanded ; nay, even beyond 1,000 metres it was only remarked by the movements with the rifle, whose metal parts glittered in the sunlight, and the Artillery could now belabour them properly.

I wish to adduce something else. On the 18th of August, 1870, from the neighbourhood of Remilly, therefore at more than 6 German miles as the crow flies, I remarked pretty accurately with the naked eye the firing-lines of the two sides, which like a curtain of thick white clouds lay over the battlefield of Gravelotte, as I afterwards heard, whereas one heard no shot.

On the 16th of August, the 38th Brigade suffered its defeat principally because the French approached under the protection of the gunpowder smoke without being observed, and from the shortest distance, without a shot, overran us, who under the gunpowder smoke had not observed the danger. In the first case the gunpowder smoke might have been of a certain advantage for the superior leaders if the arrangements of the march had perchance been inappropriate. In the last case the gunpowder smoke brought advantage to the defender alone, disadvantages to the assailant. For it might well be certain that had the assailant known he was simply so to speak mixing with the enemy without perceiving it, he would not have stormed forward so impetuously. He would have been more cautious, and would at least have got to an energetic, parrying fire fight, for which now no time remained because of the surprise. So, if the view be open, then smokeless powder is the most enduring preventive of all surprises, a thing which both sides have always to consider.

But also in regard to unobstructed view one must not let oneself always be guided by theoretical ideas of the study ; but one must seek to make present to oneself true military situations. At Gravelotte the French might have just as well been able to perceive all movements of the Germans from Montigny la Grange away to Roncourt as it should, in theory, ever be possible now with smokeless powder. Nothing stood then opposed to this. Gunpowder smoke there was not, because the battle did not begin till after the movement and the forming up. The air was clear. And yet the IXth Army Corps sur-

prised the enemy ; and notwithstanding the battle was raging here, the adversary, who from St. Privat had a clear view into our movements, did nothing to disturb or to impede the German envelopment. So in such cases the smokeless powder makes no change at all, for before the opening of the battle one could in former times see just as far as now. Let not military theory, therefore, disregard men, with their mistakes and imperfections, for it is from these that, in great part, the victory accrues to the other side. The conqueror is always he who makes the fewest mistakes !

1

Sketch of th

Sketch I.



564

W. A. R. Johnson, *Editorial & Business*

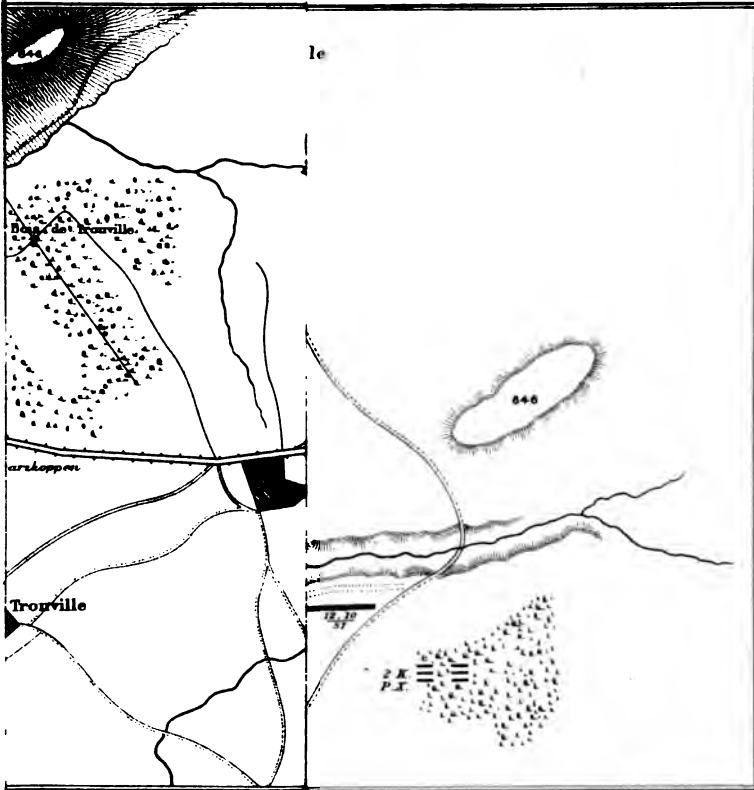


General von Schwarzkoppen. fantry Brigade.

Afternoon.

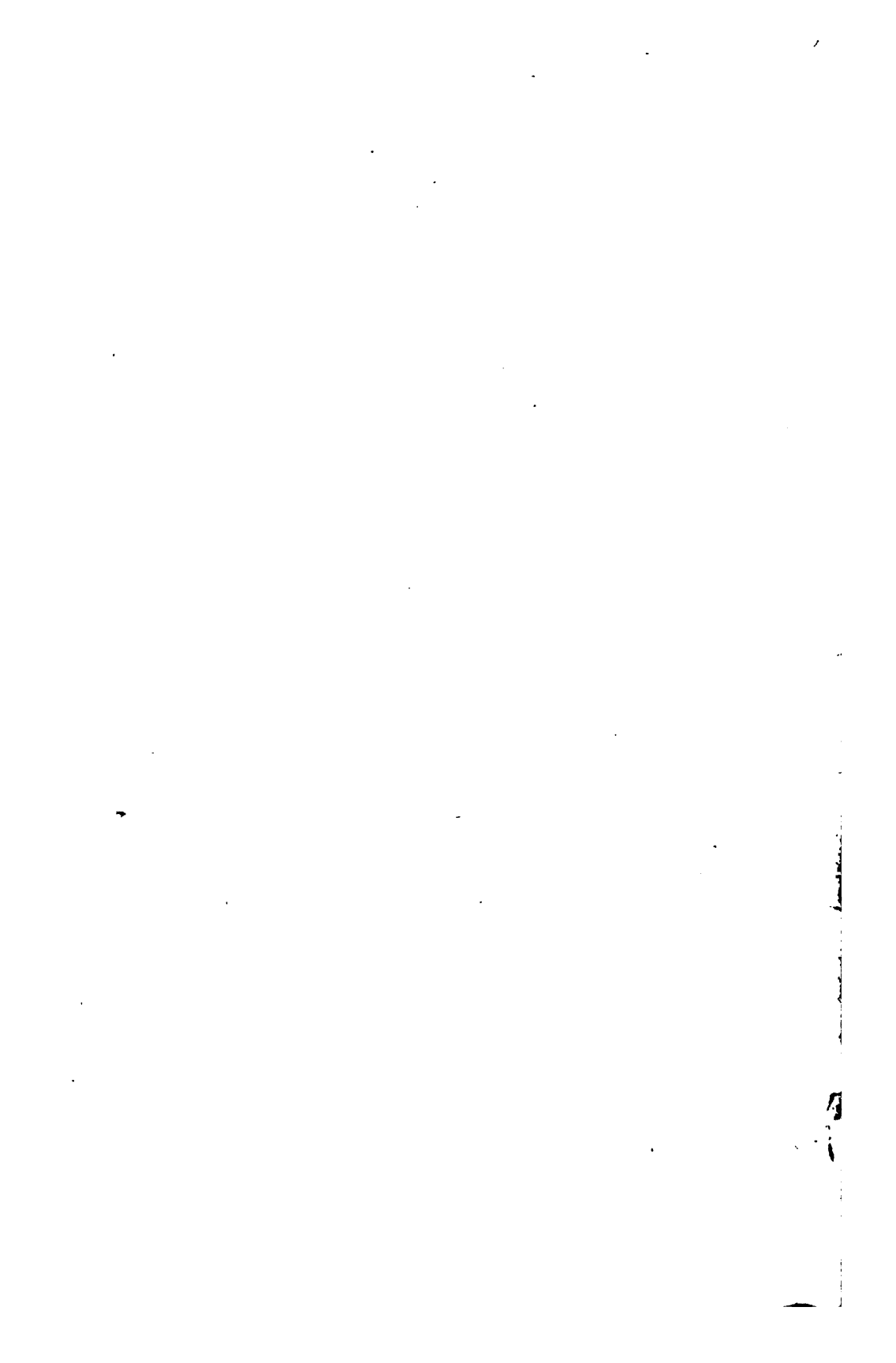
noon.

Sketch III.



1/2 mile

© A.A.R. Schmitt, 1917



This book should be returned to
the Library on the last date stamped
below.

A fine of five cents a day is incurred
by retaining it beyond the specified
time.

Please return promptly.

DUE DEC 10 1914

WIDENER
APR 1 1898